

# JOURNAL

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## AMERICAN VETERINARY MEDICAL ASSOCIATION

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35th Annual Meeting, San Francisco—Aug. 16-19, 1948

Volume CXIII AUGUST 1948 Number 857



## THE SAN FRANCISCO MEETING

"It's a call to the Golden West" — President Hagan

"The Golden Gate in '48"—fifth AVMA meeting on the Pacific Coast recalls: San Francisco (1910), Oakland (1915), Portland (1925), Los Angeles (1930) under the gavel, respectively, of A. D. Melvin, *chief*, U. S. BAI, C. J. Marshall, *teacher*, Pennsylvania, L. A. Merillat, *practitioner*, Illinois; T. H. Ferguson, *practitioner*, Wisconsin; W. A. Hagan, *dean*, New York.

Presidents elected at these meetings were G. H. Glover, *dean*, Colorado; R. A. Archibald, *biochemist*, California; John W. Adams, *teacher*, Pennsylvania; Maurice C. Hall, *parasitologist*, D. C. Next meeting places chosen were: Toronto (1911), Detroit (1916), Lexington (1926), Kansas City (1931).

THE INTEREST IN THESE REMINDERS IS THE HONOR SHOWN TO THE DIFFERENT BRANCHES OF THE SERVICE AND THE GEOGRAPHIC CENTERS CHOSEN FOR MEETINGS — TWO IMPORTANT FACTORS IN THE DEVELOPMENT OF THE VETERINARY PROFESSION IN NORTH AMERICA.



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# Journal of the American Veterinary Medical Association

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## Eradication and Control of Rinderpest in the Philippine Islands

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*Manila, Philippine Islands*

RINDERPEST is one of the most destructive epizootics known in the annals of infectious diseases. Wherever it has appeared there have been tremendous losses of cattle, sheep, goats, and pigs. In some territories

these animals have become almost extinct. The disease is believed to have originated in Asia Minor, and to have spread throughout Central Europe as a result of wars. It later appeared in Russia where it was

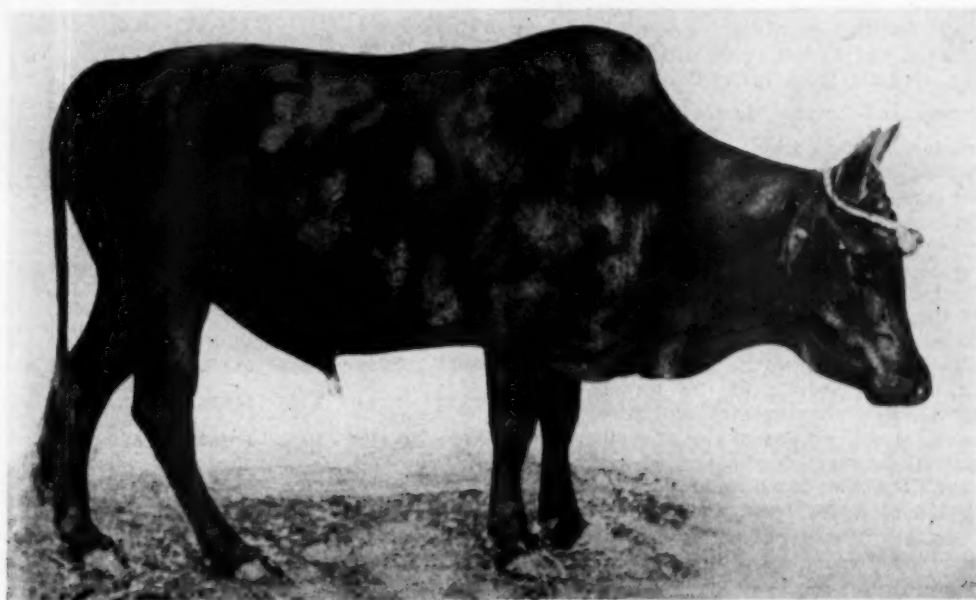


Fig. 1—Batanes bull (*Bos taurus*) on third day of temperature. Note drooping head, lopping ears, congestion of veins of face, and general depressed appearance.

—P. I. Bureau of Animal Industry

From the College of Veterinary Science, University of the Philippines, Manila.

Grateful acknowledgment is hereby made to Dr. Zacarias de Jesus, professor and head, Department of Veterinary Parasitology and Protozoology, for his valuable help during the preparation of this article, to the Bureau of Animal Industry, Manila, for the use of the pictures, to Mr. José Vergara for the photographic work, and to Dr. Victor Buencamino for the use of his library.

called Steppe Murraine. From there, it spread to Siberia and subsequently infected practically the whole of Asia.

The complete eradication of rinderpest was urgent and, consequently, European governments adopted measures by which it was pressed back to the Far East. The plague spread considerably in middle Eu-

rope for the last time during the Franco-Prussian War (1870-1871), but in the following decade it was completely suppressed, so that since 1881 it has been confined to Russia and Turkey and, more recently, has apparently disappeared even from European Russia.

While rinderpest is still prevalent on the mainland of Asia, it has been eradicated in the Philippine Islands after more than a quarter of a century, with a tremendous expenditure of money and loss of livestock. This paper records the methods used in the eradication.

#### INTRODUCTION OF RINDERPEST INTO THE PHILIPPINES

Before the introduction of rinderpest, cattle and carabao (*Bubalus bubalis*) flourished in the Philippines. They were so abundant that the price for such animals was very low. Rinderpest was introduced between 1882 and 1889,<sup>16, 21</sup> as a result of the importation of carabaos, from China or Indochina, intended for breeding purposes. Evidently, the government authorities were not acquainted with the disease and took no precautions when importing animals from infected countries.

#### SYMPTOMS AND LESIONS OF RINDERPEST

**Symptoms.**—According to Hutyra and Marek, the period of incubation of rinderpest in cattle is three to four days. Findings in the Philippines in carabaos by Boynton<sup>1, 10</sup> show that the period of incubation varies from three to five or six days. A rise in temperature to 40 to 42 C. always precedes the constitutional manifestations. Frequently, there is a premonitory period of nervous excitement which is more common in cattle than in carabaos. The animal is restless, rattles its chain, becomes vicious, and may kick and gore. After the second and third day of rise of temperature, the animal becomes docile, and anorexia soon develops. It shows drooping head, lopping ears, congestion of facial veins, and general depression (fig. 1). Muscular tremors occur throughout the body periodically. Diarrhea develops after the third or fourth day of rise in temperature. From the second day of the symptoms, characteristic inflammatory changes of the mucous membrane appear. The conjunctiva becomes inflamed, the eyelids are swollen and tears run down from the inner canthus of the eyes which are at first watery and later mucopurulent. It causes the eyelashes to stick together and may form a dry crust on the face. Photophobia is present in some instances and ulcerative keratitis has also been observed (fig. 2, 3).

There is a glary, transparent, tenaceous, and later, purulent nasal discharge. The nasal

mucous membrane is reddened and later becomes spotted with petechiae. There is an increase in the rate of respiration and frequent coughing. The pulse is rapid, and in the advanced stage of the disease it is wiry and feeble. The buccal mucous membrane is congested in spots, soon becoming covered with ecchymoses. Later, gray spots the size of a hemp or lentil seed appear. They become confluent and form pseudomembranes and, when peeled, they leave raw reddened ulcers—the so-called erosion ulcers. Saliva drools from the commissures of the mouth and often there is frequent smacking of the jaw. As a result of the digestive disturbance, constipation is first observed, the feces being firm and mixed with some mucus and passed with straining. Soon, the feces becomes thin and a peculiarly

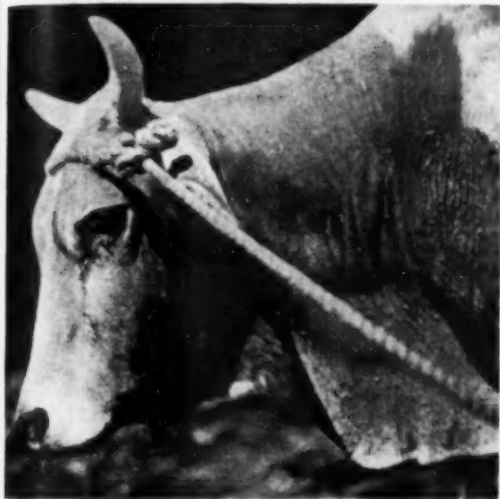
TABLE 1—Showing Statistical Data on the Effect of Rinderpest Vaccine on the Incidence of the Disease in the Philippine Islands<sup>1</sup>

Year	Cases	Deaths	Doses of rinderpest vaccine	Remarks
1916	23,806	18,251	.....	
1917	39,971	26,951	.....	
1918	21,586	15,747	.....	
1919	16,626	11,285	.....	
1920	22,442	16,911	.....	
1921	45,380	35,740	.....	
1922	45,685	34,306	.....	
1923	27,505	23,220	44,345	Phenolized — 3 injections.
1924	19,599	15,350	385,098	Phenolized — 3 injections.
1925	14,143	10,747	286,141	Phenolized — 3 injections.
1926	9,824	7,470	397,128	Phenolized — 3 injections.
1927	3,013	2,123	497,743	Phenolized — 3 injections and chloroform-treated—single injection.
1928	2,650	2,695	249,893	Chloroform-treated, single injection.
1929	4,069	3,105	442,533	Chloroform-treated, single injection.
1930	1,659	1,420	400,333	Chloroform-treated, single injection.
1931	1,325	951	112,928	Chloroform-treated, single injection.
1932	196	139	390,500	Chloroform-treated, single injection.
1933	529	297	224,373	Chloroform-treated, single injection.
1934	134	79	53,846	Dried—single injection.
1935	79	39	7,000	Dried—single injection.
1936	101	46	38,840	Dried—single injection.
1937	0	0	21,200	Dried—single injection.
1938	35	26	18,480	Dried—single injection.
1939	0	0	11,358	Dried—single injection.
1940	0	0	21,720	Dried—single injection.
1941	0	0	4,520	Dried—single injection.

<sup>1</sup>Data obtained from the Bureau of Animal Industry, Manila, Philippine Islands.

fetid, watery diarrhea follows; blood may be present. The mucous membrane of the rectum becomes swollen and congested. The hind part of the animal becomes soiled with the rectal discharges which causes the hair to fall out.

A cutaneous eruption, especially on the neck before and behind the shoulders and along the back of the animal, may be observed. These symptoms are not often found in carabaos. The milk secretion is diminished and pregnant animals may abort. The advanced stage of the disease is characterized by a dull look,



—P. I. Bureau of Animal Industry

Fig. 2—Batanes bull in latter stages of rinderpest shows general depressed appearance, lopping ears, drooping head, discharge from eyes, and drooling from mouth.

sunken eyes, mucopurulent eye and nasal discharges, foamy saliva drooling from the oral commissures, grinding of the teeth, difficult respiration, muscular tremors, erosion ulcers of the gums and inner aspect of the lips, and a fetid, watery diarrhea. Soon, the animal becomes weak and cachectic and dies from complete exhaustion (fig. 4, 5). The duration of the disease is from three to ten days.

**Lesions.**—The cadaver of the rinderpest animal is usually emaciated. The following morbid lesions will be observed: sunken eyes, mucopurulent eye and nasal discharges which may be dried into brown crust; fecal discharges soiling the posterior part of the animal, emanating a fetid odor; the visible mucous membranes are congested and hemorrhagic; the vulva shows a cyanotic discoloration and excoriation of the epithelium, appearing as if sprinkled with bran. Erosion ulcers may be seen in the lips of the vulva. On opening the abdominal cavity, the mesentery is congested, the blood vessels are dilated, and the peritoneum markedly reddened. The contents of the omasum are more or less dry and caked between the

leaves. The rumen shows no marked changes but the abomasum contains characteristic lesions. These lesions are: mucous membrane, slate gray in color; the folds show pinhead white spots which when peeled leave raw ulcers. The duodenum shows cyanosis and reddening but otherwise is not much changed. The gall bladder is distended with watery bile and sometimes may show inflammation of the epithelium with subsequent necrosis of the follicles. In the jejunum and ileum, particularly at the posterior third of the latter, extensive linear hemorrhages or ecchymoses are seen. The surface of the cecum also shows parallel lines of ecchymoses extending from the apex to the base. Beyond the colon, there are few changes to be found, but at the rectum lines of ecchymoses and a cyanotic discoloration of the anal mucous membrane may be observed. The liver and the spleen show no marked alterations except cloudy swelling or fatty degeneration. In the anterior region of the cadaver, the lesions in the throat are



—P. I. Bureau of Animal Industry

Fig. 3—Chinese bull (*Bos taurus*) on fourth day of temperature shows discharge from the eyes and extreme sensitiveness to light.

characteristic. Beginning from the oral opening, there are the characteristic erosion ulcers which may extend into the buccal mucous membrane, frenum linguae, and the tongue. The tonsils and the retropharyngeal pouches are cyanotic and, on close inspection of the mucous surface from the pharynx to the epiglottis, it appears as though sprinkled with bran. This is quite pathognomonic for rinderpest. The larynx and trachea are either petechiated or extremely hemorrhagic. In some cases, emphysema of the lungs and pneumonia may be present as complications. Edema of the lungs has been observed frequently. Boynton considers the reddening of the glans penis in the male as a characteristic lesion.

#### EFFECT OF RINDERPEST ON PHILIPPINE AGRICULTURE

The disease, having gained entrance, spread rapidly to many parts of the Philippines causing great losses of livestock and registering a mortality as high as 90 per cent. According to some of the older people who remember those years, a severe epizootic appeared about 1890 in some of the Islands, and an American, who happened to be in the Philippines in 1892, stated that cattle in Masbate Island died in great numbers in the pastures. Very likely, the infection ran its course and the cattle that survived, having acquired resistance to the disease, multiplied rapidly. One or two years before the Philippine insurrection against Spain in 1896, a goodly number of animals were available for labor, and at that time there were few importations. During the insurrection, the fields were abandoned, many animals were killed, and disease spread. Coincidentally, the Spanish-American War broke out and, in 1898, the Philippine Islands became a territorial possession of the United States. The scarcity of animals that accompanies war practically caused paralysis of agriculture, and it was necessary for the American Military Government to import cattle for meat and carabaos for labor from China or Indochina. In many instances, the imported cattle were badly infected with rinderpest. The provost general of Manila, therefore, ordered the inspection of the shipments of cattle by a veterinarian of the Army and prohibited the killing of sick animals for food.

#### METHODS OF CONTROL

When the civil government was established on July 4, 1901, following the withdrawal of the military government, the control of animal diseases was transferred to a board of health which was organized on Aug. 7, 1901.<sup>21</sup> As there were no available veterinarians in the Philippines, a few graduates were brought from the United States and a small veterinary corps was formed. A campaign against rinderpest was thus begun by the civil Government. The disease was then raging with high virulence. As years went by, the Government realized the magnitude of the task, and several methods were tried with varying results, finally culminating in the eradication of this disease after more than a quarter of a century.

At one time, in the preparation of its annual budget, the Philippine Government gave preferential consideration to funds for the prosecution of the rinderpest campaign. So great was the interest of government authorities, that the Philippine legislature contemplated offering a substantial reward for a cure for rinderpest.<sup>22</sup>

#### MEASURES USED TO COMBAT RINDERPEST

1) *The Glycerinated Bile Method of Immunization.*—The glycerinated bile method of immunization,<sup>23</sup> tried by Robert Koch in South Africa, was the first one used in the Philippines. Available records show that it was used for a very short time—from the latter part of 1901 to the early part of 1902—and only about 3,000 head were injected. It was discontinued because it was impractical.

2) *The Simultaneous Inoculation of Virus and Serum in the Field.*—In August, 1902, the Board of Health established a serum laboratory and started production of rinderpest antiserum. On Jan. 30, 1903, this laboratory was transferred to the newly created Government Laboratories which, in later years, was to become the Bureau of Science. The method<sup>24</sup> followed, after the establishment of the serum laboratory, was the simultaneous inoculation of animals in infected areas to produce permanent immunity against the disease. The serum was sent to the field, and the field veterinarian obtained the virulent blood from animals found sick with the disease. A small dose of virulent blood was inoculated into the apparently healthy animal, followed by an amount of immune serum calculated to protect it from a severe reaction. This method did not produce the desired results. In many places, the losses were so great that the people became antagonistic. The mortality of cattle and carabaos, due to rinderpest, reported during the year 1902 reached a total of 629,176, with an approximate value of \$45,000,000.<sup>25</sup> The failure of the process was undoubtedly due to the fact that it did not take into consideration that virus, obtained in such a haphazard manner, did not insure uniformity of virulence and that exposed animals in an infected area were not proper subjects for this type of immunization. Moreover, the transmission of other blood diseases such as piroplasmosis and surra was facilitated and, thus, might have contributed to the high mortality.

3) *Serum Alone Method and Quarantine.*—In 1905, a reorganization of government bureaus was effected and the veterinary division of the Board of Health was transferred to the Bureau of Agriculture. In January, 1907, the veterinary serum laboratory was also transferred to this bureau from the Bureau of Science.<sup>26</sup> Thereafter, the Philippine Commission approved Act 1760 which empowered the director of agriculture to issue rules and regulations regarding quarantine of infected areas and the traffic of animals throughout the provinces. It was not until 1910 that the Bureau of Agriculture had enough veterinarians to carry out this Act.

A well-planned campaign was started in 1911 which had for its primary object the control of rinderpest in the central provinces of Luzon Island. The simultaneous method

was discontinued and the serum alone method<sup>25, 26</sup> as practiced by British veterinarians in India, aided by quarantine measures, was started. While this method proved fairly successful in that country because the animals had acquired a relatively high resistance to the disease, it failed in the Philippines because the Philippine animals were highly susceptible to the disease<sup>20, 21</sup> and the dose of immune serum needed to confer protection was 10 to 15 times greater than the dose commonly used. Moreover, this protection lasted only seven to fourteen days at the most.

Municipalities and provincial boards were urged to pass local animal quarantine ordinances penalizing violators, many of whom were brought to trial and promptly sentenced in order to impress the people with the neces-

sary of the United States Army and the Philippine constabulary to help in this work. These military organizations willingly cooperated with the veterinarians and livestock inspectors of the Bureau of Agriculture. On June 30, 1912, 30 officers and 1,390 enlisted men belonging to 13 companies of the Philippine scouts, and 6 officers and 147 enlisted men from the Philippine constabulary were detailed for this work (fig. 6). The veterinary field force of the Bureau of Agriculture at that time consisted of 44 American veterinarians and 64 American and 223 Filipino livestock inspectors.<sup>22</sup>

This campaign began in May, 1911, in the province of Pangasinan which is one of the most important rice-producing provinces of central Luzon. The procedure was to occupy



—P. I. Bureau of Animal Industry  
Fig. 4—Formosan cow (*Bos taurus*) in the latter stages of rinderpest. Head is held near flank and cow has depressed appearance.

city of obeying the quarantine rules. The strict enforcement of these rules, which naturally interfered with farm operations and caused inconveniences, became unpopular in the provinces of central Luzon.

4) *Slaughtering of Sick and Exposed Animals*.—In 1911, the classical method of slaughtering the sick and exposed animals, with a certain amount of indemnity, was tried. It had to be discontinued after a brief trial because the Filipino farmer could not bear to see his animal killed and, as a consequence, he hid his sick animal in the mountains, thus bringing the infection to the wild hogs and deer. These wild animals came down to the valleys at night and spread the disease to distant places.

5) *Strict Quarantine and Sanitation*.—Another plan had to be devised. It was proposed to concentrate on the strict enforcement of proper quarantine and sanitary measures in campaigns,<sup>23, 24</sup> progressively covering entire provinces, in the hope that the infection would die out if properly prevented from spreading for a certain time. The use of serum was gradually abandoned and eventually the serum laboratory was closed.

Arrangements were made with the Philippine



—P. I. Bureau of Animal Industry  
Fig. 5—Indochinese carabao (*Bubalus bubalis*) in the latter stages of rinderpest shows head held around to side, uneasy position, due to front leg being knuckled under neck.

a number of towns simultaneously and confine all animals for fifteen days.<sup>18</sup> The carabao and cattle were tied under sheds (fig. 7), at least 20 meters apart, with strong ropes not exceeding 1 meter in length. No work passes were issued, and all movement of animals was temporarily stopped during the fifteen-day tie-up. The owners were obliged to bring food, water, and individual drinking vessels in order to prevent the possibility of directly or indirectly spreading the disease. The usual sanitary measures were strictly enforced; in some instances, it was necessary to enforce stricter quarantine measures<sup>18</sup> as follows:

The entire municipality is considered infected and all animals are tied up 20 meters apart in all barrios with the exception of the infected barrios and barrios contiguous thereto. No movement of animals for any purpose is allowed in the infected municipalities for fifteen days. An isolation corral is constructed in the infected barrios in accordance with standard Bureau specifications. In addition to this, a bamboo obstruction is constructed 50 meters distant from the isolation corral. A scout guard is placed outside of this quarantine line whose duty it is to see that no one enters other than the caretaker or authorized

agent of the Director of Agriculture. All animals in the infected barrios and adjoining barrios as well, are placed in individual corrals, 3 meters square (fig. 7, 8), at least 40 meters apart, and whenever possible not less than 100 meters from a house. These individual corrals are constructed of bamboo or other suitable material and are not provided with gates. The owner is required to provide two short bamboo ladders in order that he may be able to climb over the fence and enter the corral to clean it. A depository one meter deep for the refuse is placed just outside the corral, and a drinking vessel is placed in each corral. These individual corrals are provided with ample shade and are placed whenever possible in an open field.

These corrals were built in an open field to discourage people congregating around the animals, as they were prone to do when the animals were quarantined near their houses. They usually examined the sick animals with their hands and, on returning home, looked over their other animals for like conditions, thus frequently transmitting the infection. The construction of the corrals without gates precluded the possibility of the owners pasturing the quarantined animal at night.

Permits to work are given in the noninfected barrios after the completion of the fifteen-day tie-up and twelve days after the discovery of the last case in the infected barrios. When permits are given to work, the owner is obliged to construct an individual corral in the piece of land which he desires to cultivate and the animals are required to be in the corral at all times when not at work. No animals of the class affected are allowed to pasture until thirty days after the appearance of the last case of rinderpest, in other words, no pasture permits are given until the municipality in question is entirely released from quarantine.

When enough scouts are available, night guards are placed in the infected barrios.

During the quarantine, a census of all the animals in the occupied area was made, and all foci of infection were located. These infected places were quarantined and guarded by sufficient soldiers, while the rest of the forces proceeded to other areas. The execution of this method of control was difficult because the Philippines was an unfenced country and all animals were free to roam in the field for their food. Since pigs, sheep, goats, wild hogs, and deer are susceptible to rinderpest, and possess varying degrees of resistance, it can easily be seen that a mild form of the disease may be overlooked. Undoubtedly, this was the cause for the delayed reappearance of the infection in the provinces where the quarantine had been lifted.

The strict enforcement of quarantine regulations and the unfavorable reaction of the people who considered these campaigns worse than the disease induced many political candidates to include in their platforms the abolition of all quarantine measures. Many governors and other officials were elected on this issue. The opposition was so strong that the Philippine legislature in December, 1913, passed Act 2303, transferring the control of rinderpest from the Bureau of Agriculture to the provincial governors.<sup>10</sup> This Act required the Bureau of Agriculture to issue the necessary rules and regulations, but left to the provincial governors their execution. As was to be expected, political considerations entered into the proper enforcement of the quarantine measures, and the people had to learn by experience the difficulty of the task they had assumed and to realize their mistake later. The outbreak of rinderpest continued with increased vehemence and, in 1922, the

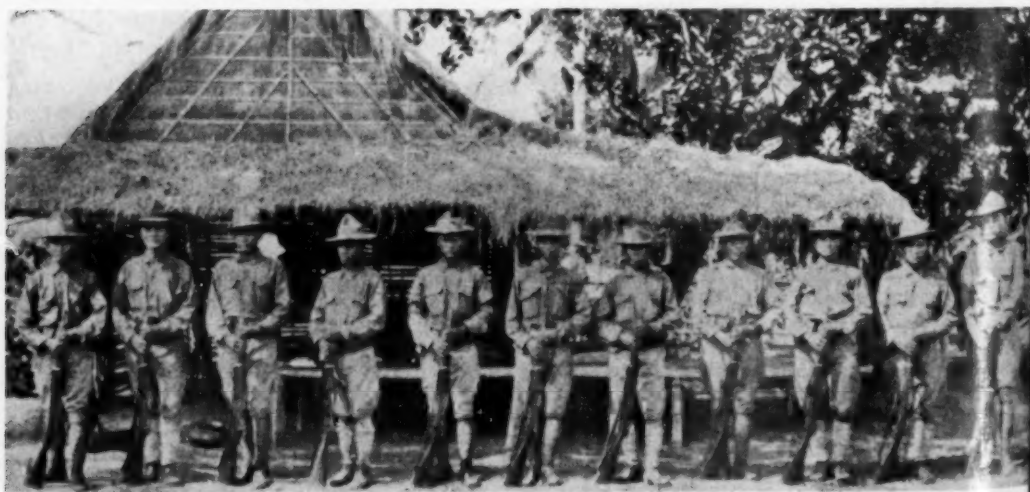


Fig. 6—Outpost of Philippine Scouts of the United States Army on rinderpest quarantine duty.

—P. I. Bureau of Animal Industry

Philippine legislature passed an act returning the control of animal diseases to the director of agriculture, realizing that only the Central Government could effectively coördinate and enforce the various measures.

6) *Quarantine of Imported Animals.*—The government authorities, believing that it would be futile to attempt to eradicate the disease by strict enforcement of quarantine measures if the infection was continuously brought in by the importation of animals from infected countries, started a move to prohibit the importation of animals. But this was met with strong opposition from the public, which was insistent on acquiring sufficient work animals for their farms and cattle for meat. It was, therefore, decided to establish quarantine stations and impose a ninety-day quarantine on all shipments found infected, thus minimizing as much as possible the introduction of the disease from outside sources.

7) *Well-Controlled Simultaneous Method of Immunization.*—Experience had demonstrated that in an open country, devoid of fences, and where all animals roam freely for their food, the eradication of animal diseases by strict quarantine measures alone is not possible. The Government, then, attempted to attack the problem of disease control by building up a permanent immunity with a well-controlled simultaneous inoculation<sup>28</sup> of the uninfected animals. In 1914, immunizing stations (fig. 9) were established in provinces where the governors realized the imperativeness of doing this work in the face of such a seemingly hopeless situation. At first, the people strenuously objected to bringing their animals to these immunizing stations because of the inconveniences and the failure of the methods previously adopted by the Government. But by diplomacy, tact, and the permanent immunity acquired by the

treated animals, the people became convinced of the efficacy of this method of immunization and many requests for the establishment of such stations were received. Unfortunately, this plan proved to be too expensive to satisfy all of the requests. Moreover, it was soon realized that this method was too slow to prevent the spread of the disease and had to be discontinued after several years of operation.

8) *Training of Filipino Veterinarians.*—In 1909, the Philippine legislature, in founding the University of the Philippines, provided for a college of veterinary science as one of the first units of this University (fig. 10). It was hoped that, as in central Europe and the United States, the training of its own veterinarians would eradicate, or at least properly control, rinderpest and other infectious diseases of animals in the Philippines. This College was formally opened in 1910. As graduates in veterinary medicine emerged, they gradually replaced the American veterinarians in the service of the Government, and the antagonistic attitude of the people toward rinderpest campaigns changed for the better and the final results fully justified the expectation.

Dr. Murray Bartlett, the first president of the University of the Philippines, on the occasion of awarding diplomas to the first graduating class of the College of Veterinary Science in 1914, made this significant statement:

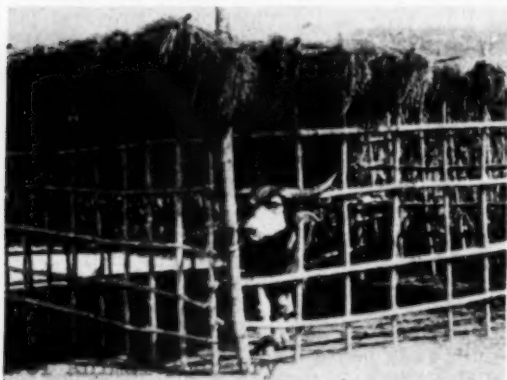
The service of expert veterinarians is an absolute necessity in furthering the development of the immense agricultural resources of the Philippine Islands. The material possibilities of the country's welfare cannot be realized without scientific protection against animal epidemics that have worked havoc during the past. This necessary duty should be performed by well-trained Filipinos who can speak to the people in their own language and understand, by innate sympathy, the conditions of their time . . .



—P. I. Bureau of Animal Industry

Fig. 7—Method of isolating individual animals exposed to rinderpest by tying under sheds.

9) *Wet Tissue Vaccine*.—About this time, a search for a vaccine was undertaken by the veterinary research laboratory and after several years of careful and painstaking work Boynton's wet tissue vaccine<sup>10</sup> was developed. It consisted of a heated, glycerinized and phenolized mixture of blood and ground tissues of spleen, liver, kidneys, lymph glands, heart, and testes taken from animals killed in the acute stage of rinderpest. The blood content made up



—P. I. Bureau of Animal Industry  
Fig. 8—Method of isolating individual animals exposed to rinderpest in closed corrals.

from 1/3 to 1/4 of the bulk and the phenolized glycerine, with a pH of 7.8 added, was equal to 1/2 of the weight of the tissue. This mixture was heated for three hours at 42 C. After heating, it was allowed to age at refrigerator temperature for one to six or seven months. Before issuing a batch of vaccine to the field, controlled immunity tests were made. The vaccine was diluted with 33 1/3 per cent glycerine in physiologic saline solution before using. The dose of 20 cc. to 30 cc. was given subcutaneously in three injections at one-week intervals.

10) *Improved Wet Tissue Vaccine*.—As

there were various shortcomings in the manufacture of this vaccine, such as its short keeping-qualities and the length of time needed for proper attenuation of the virus, Dr. Raymond Kelser was detailed, in 1926, by the U. S. Army Medical Department Research Board, with the coöperation of Drs. Stanton Youngberg and Teodulo Topacio of the Bureau of Agriculture, to undertake a study of this vaccine in order to improve it.

In 1928, Dr. Kelser succeeded in improving the vaccine<sup>11</sup> so that it could be used immediately after preparation and this proved to be highly efficacious. This was done by the addition of 0.75 per cent chloroform to finely ground tissues of lymph glands, spleen, and liver. He discarded the other organs originally included in the preparation of the vaccine because they were found nonantigenic. The dosage of this improved vaccine was 20 cc. given in three injections at one-week intervals. Dr. Kelser suggested that the injections could be reduced to a single injection by utilizing only the tissues of the highest potency, such as the lymph glands and spleen. Subsequently, Rodier (1928) carried on more extensive work in this regard and proved that a solid immunity could be produced with a single injection of the chloroform-attenuated vaccine as prepared by Kelser, using the spleen, lymph glands, and tonsils only. During the three years after the use of this modified, single-injection vaccine, which was dependable in controlling field infection (fig. 11), even when given in 6-cc. doses for carabaos and 3 cc. for cattle, the number of cases of rinderpest rapidly decreased. It was found that this vaccine was unreliable after forty-eight hours of exposure to a temperature of from 24 to 32 C.

11) *Dry Tissue Vaccine*.—Experience had shown that the highly perishable nature of the wet vaccine in the absence of ice made the product difficult to use in certain sections of the islands where transportation facilities were



—P. I. Bureau of Animal Industry  
Fig. 9—Immunizing Station, San Fernando, Pampanga. Partial view of laboratory (right), cattle sheds (left), and dipping tank in foreground.

poor and the availability of ice was low, as in the mountainous regions where the infection prevailed. Robles and Generoso,<sup>10</sup> in order to improve the keeping quality of this vaccine, experimented and succeeded in developing a dried vaccine from spleen and lymph glands. This could be kept potent even if held at room temperature for not more than thirty days. The dosage consisted of 0.5 to 1.0 Gm. for cattle and 2.0 Gm. for carabaos, diluted with 10 cc. of 30 per cent phenolized glycerine solution in physiologic saline. By the use of this dried rinderpest vaccine, the campaign of eradication was effectively extended to the remotest parts of the country and in 1937 no cases were recorded (table 1). The following year, new cases were discovered but the infection was promptly checked and, thereafter, no more cases appeared. The Philippines was officially declared free from the disease in 1941. This is an achievement unique in the annals of infectious diseases.

#### DISCUSSION

After repeated failures, the various methods used in the campaign against rinderpest in the Philippine Islands for more than a quarter of a century finally culminated in the eradication of the disease. Enormous losses of livestock and a tremendous outlay of money were incurred, but they were well worth the sacrifice, as the

greatest deterrent to the development of Philippine animal industry and agriculture was rinderpest. The peculiar conditions under which that campaign had to be carried out were responsible for the repeated failures in the past: the open fields devoid of fenced enclosures wherein all species of animals roamed freely for their food; the ignorance of the people about the ways and means infectious diseases spread; and the lack of sufficient government funds.

Rinderpest existed in Europe for centuries and no evident progress was attained until the slaughtering of all sick and exposed animals was strictly enforced. This classical method failed in the Philippines because of the strong sentimental attachment the Filipino farmer has for his animal. He would rather hide his sick animal in the mountains and allow it to die than see it killed and receive compensation. The other methods of control also failed, either because the people offered strong opposition or the Government had insufficient funds to carry an effective plan to completion.

The Philippine legislature showed foresight in establishing a veterinary college for the training of Filipino youth in veteri-

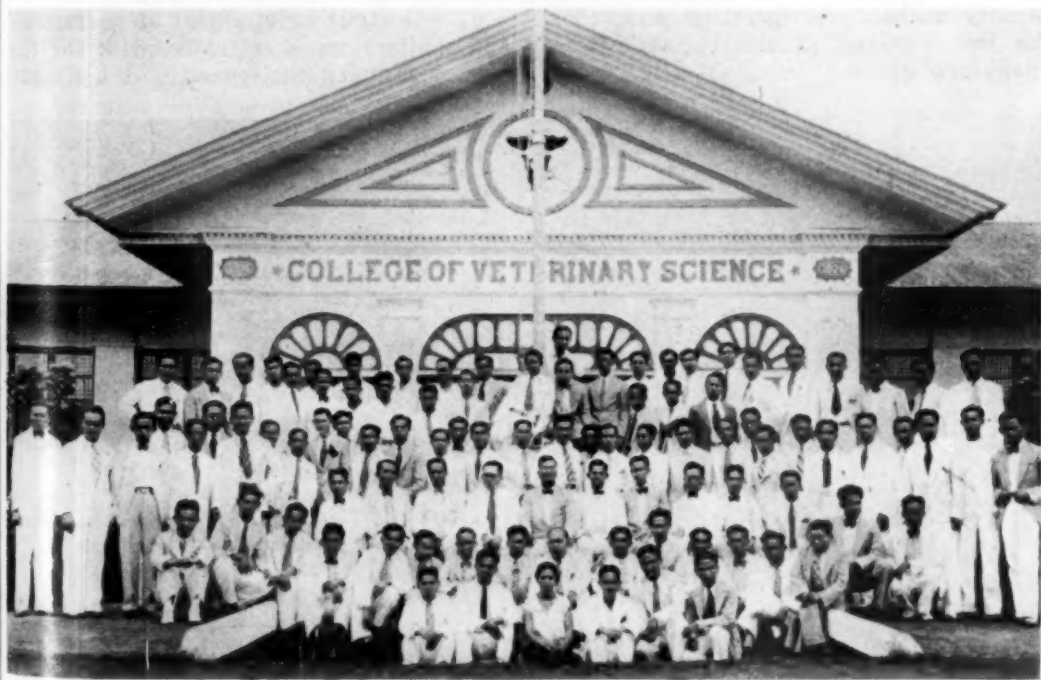


Fig. 10.—Faculty and students, College of Veterinary Science, University of the Philippines, Manila.

nary medicine because, as graduates from this institution gradually replaced the American veterinarians in government service, the antagonistic attitude of the people changed and their coöperation was easily obtained. Moreover, a permanent Filipino veterinary organization has been created which is always on the alert for any possible recurrence or introduction of the infection.

The development of the rinderpest tissue vaccine proved to be the most effective weapon in the final eradication of the disease. First produced by Boynton in an imperfect form, its use in the field proved of great value. Its shortcomings consisted in its poor keeping-qualities and the length of time for preparation—from six to seven months. Kelser's modification, by introducing chloroform attenuation of the virus, made it possible to use the vaccine in the field soon after its preparation and increased its keeping qualities as long as one year under refrigeration. Further improvement in the form of a dried powder by Robles and Generoso made it possible to keep the vaccine potent as long as thirty days at room temperature and in the ice chest for twenty-seven months. The advantage of this dried vaccine was that it could be sent to the remotest parts of the country without refrigeration and, thus, the last vestiges of the epizootic were finally eradicated.

#### SUMMARY

1) Rinderpest was probably introduced into the Philippines between the years 1882 and 1889 by animals imported from China or Indochina for breeding purposes.

2) The first attempt at combating this disease was by the glycerinated bile method of Koch. This was tried in the latter part of 1901 and the early part of 1902 but was found to be impractical and was soon discontinued.

3) The simultaneous inoculation of serum and virus in the field was instituted in 1902. It proved to be ineffective because the virus obtained in the field was not uniform in virulence, and exposed animals were not proper subjects for this type of immunization.

4) The serum alone method with quarantine was enforced in 1911. This failed because the protection offered lasted only seven to fourteen days and the dose of the immune serum given was only 1/15 of the amount needed for protection.

5) For a brief period, the classical method of slaughtering all sick and exposed animals, with payment of indemnity, was tried in 1911. This had to be discontinued because the Filipino farmer would rather hide his animal and see it die than have it killed and receive indemnity.

6) The strict enforcement of quarantine and sanitary measures alone, with the object of stopping the spread of the disease



Fig. 11—Homeward bound after having been vaccinated with rinderpest antiserum.  
—P. I. Bureau of Animal Industry

for a fifteen-day period in the hope that the infection would die out, did not succeed. It was found that, in an open country devoid of fences like the Philippines, the existence of mild and unrecognizable forms of the disease constituted the greatest handicap in the effective execution of this plan of campaign.

7) The establishment of immunizing stations began in 1914 and, after several years, had to be discontinued because it proved too expensive and too slow to prevent the spread of the disease through the country.

8) The training of the Filipino young men in veterinary medicine, which began in 1910, produced favorable results. As the graduates from this institution gradually replaced the American veterinarians in the field service of the Government, the antagonistic attitude of the Filipino farmers changed and their coöperation was easily obtained. It also made possible the creation of a permanent veterinary corps which insures the prevention of the reintroduction of the disease into the Philippines.

9) Boynton's rinderpest tissue vaccine, although imperfect, proved to be an effective weapon to some extent against the disease.

10) The introduction of chloroform attenuation in the preparation of this vaccine, and the subsequent adoption of the single injection, materially improved the processing and effectiveness of the vaccine.

11) Further modification of the vaccine in the form of a dried powder, which could be sent to the remotest part of the country without refrigeration, finally eliminated the last vestiges of the infection and, in 1941, the Philippine Islands were officially declared free from rinderpest.

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*Horses and Mules in the U.S.A.*—Figures furnished by J. Clyde Marquis for *Encyclopedia Britannica's Ten Eventful Years* (1947) show that there were 12,105,000 horses and mules in the U.S.A. as of Jan. 1, 1946 and 26,700,000 in 1918, a decline of 14,659,000 in twenty-eight years.

The United States is at present the most wool conscious country in the world, using more wool per capita than any other nation, according to the American Wool Council.

## Gleanings from Committee Reports

(The committee reports will be presented at the 85th Annual Meeting in San Francisco, August 16-19, 1948, and will be published in full in the November JOURNAL.)

**Council on Education.**—The inspection project of the schools . . . has been vigorously pursued. . . . Unfortunately, some of the schools are continuing to enroll larger numbers than can be adequately instructed. This applies especially to the teaching of clinical subjects.

**Legislation.**—The Committee has been concerned with two principal items of national legislation: laws which would return the costs of federal meat inspection to the United States from the "packer-paid" arrangement, and the "Selective Service Act of 1948."

**Therapeutic Agents and Appliances.**—It is necessary to have definite objectives when determining the therapeutic value of medicinal agents. The Committee has formulated some rules which it believes will provide a basis for these objectives.

**Public Relations.**—Literally, millions of radio listeners each week are given sound information about animal disease problems and the part that the veterinary practitioner is playing in helping to cope with these problems.

**Poultry.**—Veterinarians, extension workers, and others concerned with the poultry industry should strive to impress poultrymen with the vital necessity of disease control in order that shortages (in eggs and poultry meat) will be averted or minimized.

**Parasitology.**—A tendency to consider the parasite alone as the important factor in the etiology of a parasitic disease may not be in the best interests of veterinary practice, as a clinical form of a parasitic disease is often caused by a complexity of conditions.

**Nutrition.**—The gross deficiencies are ordinarily diagnosed and corrected, but the borderline or marginal cases may be overlooked. The latter class, from an over-all animal health standpoint, is most important and by far the most prevalent.

**Registry of Veterinary Pathology.**—The fellowship in veterinary pathology, sponsored by the AVMA at the Army Institute of Pathology, is still vacant. Many important opportunities exist for this fellow.

**Ethics.**—The constituent associations have adopted the Code of Ethics of the AVMA, or one similar and acceptable to this Committee; they also have appointed a state committee on ethics.

**Nomenclature of Diseases.**—Some work has been done toward cataloging the diseases of animals, but the question of their assignment and allocation to specific categories has been the basis of debate among the committeemen.

**Food and Milk Hygiene.**—The importance of providing adequate protection to consumers of food of animal origin remains one of the greatest responsibilities of the veterinary profession.

**Diseases of Food-Producing Animals.**—This report constitutes a tabulation of the diseases of the various species of food-producing animals by seasons of the year. The Committee has made an attempt to obtain a general cross section of disease incidence in the United States and Canada.

**Diseases of Wild and Furbearing Animals.**—The Committee recommends that the AVMA use its influence to establish a center where all information on diseases of wild animals, including those in captivity, zoos, etc., and domesticated furbearing animals, may be assembled and disseminated.

**Small Animals.**—The many requests from owners of dogs regarding the problem of convulsions is alarming. It would seem, from these inquiries and from information gained from practicing veterinarians, that this problem is the greatest confronting the small animal practitioner at the present time.

**Motion Picture Library.**—An earnest appeal is made to members of the veterinary profession to produce motion pictures of interest, either medical or surgical, for addition to the film library.

**Veterinary Services.**—The Committee recommends a program to point out to livestock owners the losses incurred and the dangers involved through the promiscuous and needless use of drugs and biological products . . . and stressing the importance and value of proper diagnosis in disease control.

**National Board of Veterinary Examiners.**—It is believed that the functioning of such a board would exert a marked influence in gradually raising and standardizing the qualifications for the practice of veterinary medicine . . . subject to the licensing requirements of the laws of the various states.

## Fraudulent Manipulation of Dressed Poultry

H. D. PRITCHETT, V.M.D.

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THE BURNING desire to "get something for nothing" is widely prevalent, but is especially well developed among some retail and wholesale poultry distributors, as well as among certain packers and consumers. The thrill of putting something over on the inspector or the public, to them, is all-consuming. The manipulation that fresh-dressed poultry undergoes for the express purpose of making the bird look like "something that it ain't" is only slightly short of scandalous. At any rate, it is a definite and deliberate attempt to deceive the unsuspecting, uninformed, and gullible public. A few of these practices are described to point out that such chicanery is known to be employed in the industry, although the rebuttal would be to the effect that first, these violations do not occur on a widespread scale; and second, that the advantage gained by the individual practicing them is small and of little or no economic value. Such a defense could only result in a true bill of indictment of the practices because of the contained admission that these practices are actually employed, and also that adulteration was the admitted intent of these procedures, which are practiced sporadically and in certain geographical areas. The already overburdened and restrained food inspector cannot locate the source of origin and the perpetrators of such manipulation, both of which are required of him, without assistance and the expenditure of considerable time.

*"Paddling."*—This is a procedure used to improve the appearance of a poor carcass, especially one bordering on emaciation and presenting a razor edge sternum. The carcass is held on its back, and the prominent sternum is struck with a flat piece of wood with sufficient vigor to fracture it into several small fragments that can easily be manipulated to make the breast look round and somewhat plump, in contrast to its former unsightly appearance. No particular harm is done the carcass, but the operation is definitely fraudulent in that it attempts to improve and up-grade a low grade carcass.

*Washing.*—Slimy and stale carcasses are washed in water containing various mixtures of salt, bicarbonate of soda, vinegar, etc. in dilutions of various strengths, depending on the condition of the carcasses, and used according to the experience of the operator. Many carcasses which look and smell vile are so treated, with the result that the consumer and even the unsuspecting or inexperienced inspector are deceived into believing that the meat is fresh. This is a bad practice customarily applied to "cut parts poultry," stale eviscerated birds, and even "in the round" carcasses—an unscrupulous practice that assuredly should be outlawed.

*"Plumping" and "Hard Scalding."*—This is another way to improve the appearance of a carcass which would be unsightly and revolting, and entirely unsaleable. By dipping the bird first into hot water and then into ice water, some red and cyanotic birds can be made to appear almost normal in so far as color is concerned. The color of diseased birds can also be greatly improved by this operation. Many poor carcasses can be swelled by plumping, and made to appear of a higher grade than they actually are. This operation has been used almost exclusively by the unscrupulous retail dealer. The inspector, however, should experience no difficulty in detecting this because the skin of the bird will have a slightly cooked appearance; it will be loosely attached to the body and can be removed readily. A dressed bird and any cut parts poultry that appears to be unduly firm in consistency should be viewed with suspicion. Stale chicken is sometimes treated in this manner to set and firm it before frying.

*"Loading."*—Feeders have been known to mix very fine lead shot with wet mash in sufficient amounts to appreciably increase the weight of a lot of birds. It is not difficult to feed this material to birds that have just come in from a long haul and are to be battery fed for a few days. This certainly is deception, although the live bird is not regarded as a food item, but simply raw material from which food is to be processed. Fortunately, this kind of deception is not

very common. An inspector might experience much opposition in his efforts to establish adulteration because of the difficulty in proving that lead shot was deliberately fed to the birds for the purpose of increasing weight, although there exists no valid reason for feeding such material.

**"Sanding."**—Just before weighing in for sale, sand is sometimes mixed as a wet mash with buttermilk or some other delicacy and fed to chickens to increase weight and save feed. Unscrupulous producers may do this sanding at night or early in the morning. This is not believed to be generally practiced and thus escapes detection, but it is worthy of note.

**"Plugging."**—This too is apparently a practice rarely used to fraudulently increase weight, and the writer's attention was directed to it on only one occasion. Although its efficacy is open to question, plugging should not be entirely ignored. The term "plugging" is rather descriptive because it means feeding the birds material in the dry mash (probably plaster of paris) in sufficient concentration so that when this material enters the gastrointestinal tract and encounters moisture, it will suddenly expand and harden. Since plaster of paris possesses the very unusual feature of great expansion on hardening, it would not be difficult to understand the establishment of a complete block at some point in the digestive tract, thereby retaining fecal material and preventing defecation. Of course, these birds of necessity would have to be slaughtered at the proper time, in order to gain sufficient advantage of increased weight to offset the loss by death that is certain to occur as the result of the intestinal obstruction.

**"Needling."**—As the term implies, this is an operation whereby fluids can be injected into the muscles, generally the breast, of a low grade carcass to enlarge it so that it will present a plump appearance and also to increase the weight. To increase weight, the injection is sometimes made directly into one of the body cavities, a very easy and simple operation and difficult to detect.

**"Stuffing" or "Force Feeding."**—This operation has for its primary objective the rapid and appreciable increase of weight of the individual live bird or carcass. Soft, wet feed is inserted into the crop of live birds with a tube connected to a pump. The same operation can be performed on the

dressed carcass by inserting the tube into the cloaca. The obvious purpose in either case is to increase the weight of the bird or carcass with excessive moisture and grain. Stuffing of live birds with legitimate feed is not in itself fraudulent.

**"Soaking in Water."**—This is a common procedure among packers and dealers. The packer uses ice-water-soaking to cool the dressed carcass, and the dealer uses the method either to thaw frozen poultry or to increase its weight. The practice of water-soaking needs considerable investigation and surveillance, because of the fraud element of increased weight and, last but by no means least, the actual contamination of the carcass by filthy water since this filthy water actually gains entrance to the carcass.

**"Venting."**—All dressed poultry, just prior to the last washing, should be vented to evacuate the cloaca, to prevent leakage and contamination of the dressed and packed carcass, and to help prevent early spoilage in the form of "green struck" in the region of the vent. This operation is performed first by the mechanical "rougher" and lastly by actual manual compression of the vent to forcibly expel the fecal contents. Failure to perform venting obviously saves one actual operation, and also retains sufficient fecal material to represent an appreciable amount of increased weight. Avoidance of this operation saves the packer time and the cost of the labor, besides increasing the weight.

This is merely a summary of a few observations and is not a complete discussion of the subject.

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A new Jersey club, afield in the Middle-west (*Jersey Bulletin*, Aug. 27, 1947) and representing itself as an official registry, is denounced editorially on the ground that its records will not be recognized in the Jersey cattle fraternity, legal as it may claim to be.

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The chemistry of starch, the most plentiful organic substance in nature, is perhaps less understood than any of the other main components of plant life. Twelve large universities (*The Feed Bag*, March, 1948) have launched research projects to solve the transfiguration of the starch molecule.

# Report on Infectious Equine Encephalomyelitis in the United States in 1947

*Abstracted from a report (dated June 1, 1948) by Dr. B. T. Simms, Chief, United States Bureau of Animal Industry*

Infectious equine encephalomyelitis was reported from 33 states during 1947, with a total of 8,716 cases recorded. The number of cases reported in 1946 was 2,805. The average mortality of 58 per cent is the highest recorded during the thirteen years the U. S. BAI has conducted these surveys.

The sharp increase over 1946 was due mainly to a severe outbreak in Louisiana, where 3,813 cases occurred—44 per cent of the national total. Brain specimens were received from Louisiana and eastern type virus was recovered. A number of human cases was reported from that area

during the epizootic. The peak of occurrence of the disease throughout the United States were July, August, September, and October.

It is estimated that about 340,000 animals received the prescribed two doses of vaccine last year, although only about 155,000 vaccinations were reported to the Bureau. Among vaccinated animals, 22 were said to have contracted the disease and, of these, 8 died. Only about one-twelfth of the vaccinations were completed before the disease reached the epizootic stage in August and September.

(See pages 124 and 125 for figure 2 and table 1.)

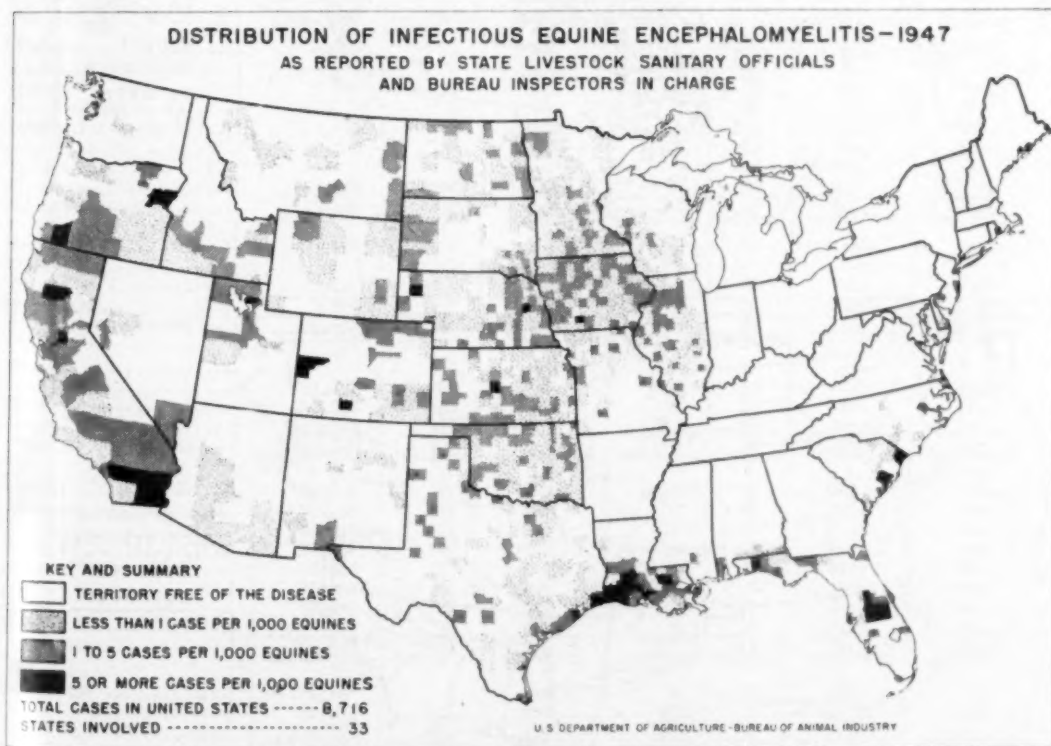


Fig. 1—Distribution and degree of incidence of infectious equine encephalomyelitis, 1947.

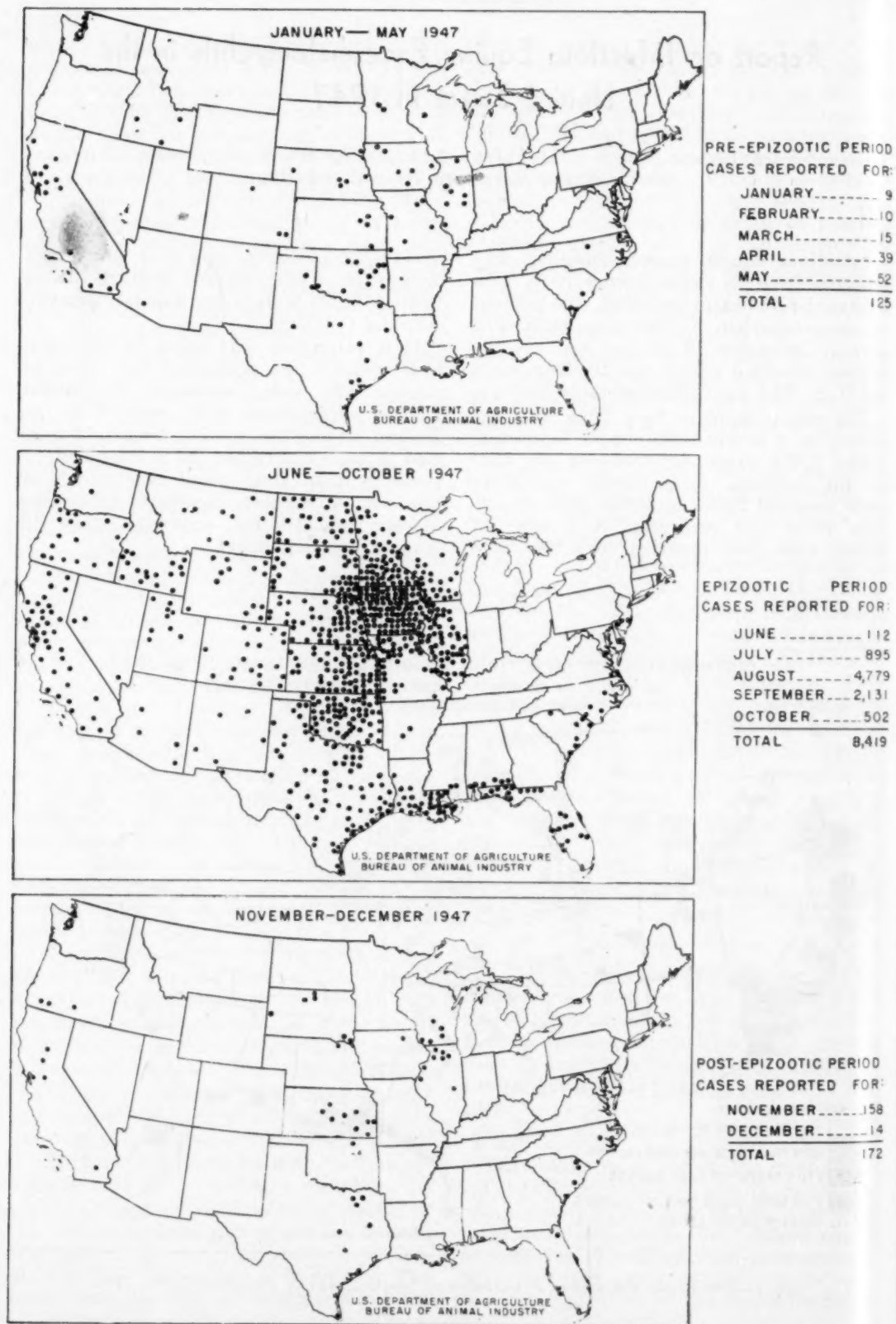


Fig. 2—Distribution of reported cases of equine encephalomyelitis according to periods during 1947. Each dot represents a county in which 1 or more cases occurred during the period.

TABLE I—Infectious Equine Encephalomyelitis. Summary of Reports on Incidence and Mortality by States, 1947.

State and division	Horses and mules in affected areas	Animals affected	Cases per 1,000 horses and mules	Total deaths	Deaths per 100 affected animals	Month of report of —	
						First case	Last case
Maine .....	—	0	—	0	—	—	—
New Hampshire .....	—	0	—	0	—	—	—
Vermont .....	—	0	—	0	—	—	—
Massachusetts .....	1,360	1	0.7	1	100	Sept.	Sept.
Rhode Island .....	—	0	—	0	—	—	—
Connecticut .....	—	0	—	0	—	—	—
New England .....	<u>1,360</u>	<u>1</u>	<u>0.7</u>	<u>1</u>	<u>100</u>	<u>Sept.</u>	<u>Sept.</u>
New York .....	—	0	—	0	—	—	—
New Jersey .....	4,941	7	1.4	7	100	August	Sept.
Pennsylvania .....	—	0	—	0	—	—	—
Middle Atlantic .....	<u>4,941</u>	<u>7</u>	<u>1.4</u>	<u>7</u>	<u>100</u>	<u>August</u>	<u>Sept.</u>
Ohio .....	—	0	—	0	—	—	—
Indiana .....	—	0	—	0	—	—	—
Illinois .....	259,531	224	0.9	61	27	Jan.	Dec.
Michigan .....	—	0	—	0	—	—	—
Wisconsin .....	<u>175,199</u>	<u>99</u>	<u>0.6</u>	<u>26</u>	<u>26</u>	<u>Feb.</u>	<u>Nov.</u>
East North Central ...	<u>434,730</u>	<u>323</u>	<u>0.7</u>	<u>87</u>	<u>27</u>	<u>Jan.</u>	<u>Dec.</u>
Minnesota .....	405,113	345	0.9	116	34	May	Sept.
Iowa .....	544,139	583	1.1	156	27	Jan.	Nov.
Missouri .....	218,800	149	0.7	36	24	April	October
North Dakota .....	153,567	138	0.9	30	22	June	Sept.
South Dakota .....	183,272	165	0.9	42	25	April	Dec.
Nebraska .....	315,128	453	1.4	74	16	April	Nov.
Kansas .....	<u>281,512</u>	<u>308</u>	<u>1.1</u>	<u>54</u>	<u>18</u>	<u>Jan.</u>	<u>Dec.</u>
West North Central ...	<u>2,101,531</u>	<u>2,141</u>	<u>1.0</u>	<u>508</u>	<u>24</u>	<u>Jan.</u>	<u>Dec.</u>
Delaware .....	6,829	1	0.1	1	100	July	July
Maryland .....	—	0	—	0	—	—	—
Virginia .....	7,785	13	1.7	12	92	July	Sept.
West Virginia .....	—	0	—	0	—	—	—
North Carolina .....	32,650	28	0.9	26	93	Jan.	Nov.
South Carolina .....	38,536	183	4.7	28	15	Jan.	Nov.
Georgia .....	—	0	—	0	—	—	—
Florida .....	<u>29,346</u>	<u>94</u>	<u>3.2</u>	<u>90</u>	<u>96</u>	<u>May</u>	<u>Dec.</u>
South Atlantic .....	<u>115,146</u>	<u>319</u>	<u>2.8</u>	<u>157</u>	<u>49</u>	<u>Jan.</u>	<u>Dec.</u>
Kentucky .....	3,626	4	1.1	1	25	Sept.	Sept.
Tennessee .....	—	0	—	0	—	—	—
Alabama .....	23,197	8	0.3	7	88	July	Sept.
Mississippi .....	<u>3,608</u>	<u>3</u>	<u>0.8</u>	<u>2</u>	<u>67</u>	<u>July</u>	<u>July</u>
East South Central ...	<u>30,431</u>	<u>15</u>	<u>0.5</u>	<u>10</u>	<u>67</u>	<u>July</u>	<u>Sept.</u>
Arkansas .....	—	0	—	0	—	—	—
Louisiana .....	154,237	3,813	24.7	3,450	90	July	Sept.
Oklahoma .....	319,788	342	1.1	59	17	Jan.	Dec.
Texas .....	<u>316,321</u>	<u>715</u>	<u>2.3</u>	<u>563</u>	<u>79</u>	<u>March</u>	<u>Nov.</u>
West South Central ...	<u>790,346</u>	<u>4,870</u>	<u>6.2</u>	<u>4,072</u>	<u>84</u>	<u>Jan.</u>	<u>Dec.</u>
Montana .....	64,634	72	1.1	21	29	May	Sept.
Idaho .....	87,059	178	2.0	37	21	Feb.	Oct.
Wyoming .....	62,530	72	1.2	16	22	June	Oct.
Colorado .....	87,008	120	1.4	25	21	May	Oct.
New Mexico .....	19,267	15	0.8	4	27	July	Oct.
Arizona .....	33,203	12	0.4	6	50	April	Oct.
Utah .....	33,132	70	2.1	20	29	June	Oct.
Nevada .....	<u>5,861</u>	<u>8</u>	<u>1.4</u>	<u>2</u>	<u>25</u>	<u>July</u>	<u>Oct.</u>
Mountain .....	<u>392,694</u>	<u>547</u>	<u>1.4</u>	<u>131</u>	<u>24</u>	<u>Feb.</u>	<u>Oct.</u>
Washington .....	4,741	4	0.8	1	25	July	July
Oregon .....	72,457	206	2.8	27	13	August	Dec.
California .....	<u>135,404</u>	<u>283</u>	<u>2.1</u>	<u>85</u>	<u>30</u>	<u>Jan.</u>	<u>Dec.</u>
Pacific .....	<u>212,602</u>	<u>493</u>	<u>2.3</u>	<u>113</u>	<u>23</u>	<u>Jan.</u>	<u>Dec.</u>
Total or Average .....	4,083,781	8,716	2.1	5,086	58	Jan.	Dec.

# Some Infectious Diseases of Domestic Animals in China

## III. Swine

CHING-SHENG LO, D.V.M.

Nanking, China

IN PREVIOUS papers,\* some infectious diseases of animals (cattle and horses) in China were reported. This paper reports on some infectious diseases in swine.

**Hog Cholera.**—Hog cholera has existed in China since time immemorial. It occurs in every part of this country, and is one of the most destructive diseases of swine. The mortality is high, always over 90 per cent. In one outbreak among 97 feeder pigs, 96 head succumbed within four weeks. The disease is usually transmitted by feeding garbage. Farmers and hog raisers have learned that hog cholera is incurable, so as soon as the disease appears, the sick animals are sent to market for sale or slaughtered for local consumption. Thus, the disease is disseminated over a wide territory.

An unusual feature in the breeding of sows in China, is that the boar is kept by a poor farmer who takes the animal around for service. Undoubtedly this is one of the channels by which hog cholera is spread.

The symptoms and lesions are well known, and no additional comment is necessary.

**Swine Erysipelas.**—The disease is almost exclusively confined to the province of Szechuen and possibly the neighboring provinces. In recent months, swine erysipelas has been reported from several districts in Kiangsu and Chekiang. The authenticity of the report is awaiting the laboratory findings from the National Research Bureau of Animal Husbandry.

Erysipelas has existed in Szechuen for more than fifty years. The natives call it "diamond skin disease." It was not until 1947 that the causal organism was isolated by the Szechuen Bureau of Animal Industry.

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\*Lo, Ching-Sheng: Some Infectious Diseases of Domestic Animals in China. I. Cattle. J.A.V.M.A., 109, (Oct., 1947): 272-273.

\*Lo, Ching-Sheng: Some Infectious Diseases of Domestic Animals in China. II. Horses. J.A.V.M.A., 112, (June, 1948): 436-437.

The course of the disease is either acute or chronic. The so-called "diamond skin disease," described in the textbooks, is not observed. The acute cases are always accompanied by skin eruptions; the shape, size, and location vary. If untreated, the mortality is high, usually over 50 per cent. Chronic erysipelas is characterized by polyarthritides and endocarditis.

The disease is frequently seen in feeder pigs, although at times it may occur in old sows and fat hogs. Suckling pigs are seldom affected. In Szechuen, erysipelas is a seasonal disease. It begins in the latter part of June and reaches its height during July, August, and September. Then it gradually subsides, and seems to disappear entirely during the winter and spring months, only to make its appearance again in the summer.

The Szechuen BAI has prepared a hyper-immune serum from water buffaloes, and has used it for treatment in the past ten years. The results are satisfactory. Those pigs treated early with an adequate dose of serum invariably recover.

Since 1939, the Szechuen BAI has inaugurated the simultaneous inoculation of living culture and immune serum for the immunization of swine erysipelas. Altogether, 57,812 head had been vaccinated by the end of 1946. Reaction following vaccination is about 3 per cent, and the mortality is about 0.3 per cent. The cause of death is usually due to the use of serum (serum sickness) [anaphylaxis].

**Swine Plague.**—This disease has been reported in all parts of China, is usually enzootic, and is secondary to those factors which lower the natural resistance of animals, such as cold, internal parasites, and malnutrition. The symptoms and lesions are chiefly confined to the respiratory system, and serum treatment is not satisfactory.

**Pig Typhoid.**—The epidemiology of pig paratyphoid in China is not well understood. During my ten years' stay at Chengtu, Szechuen, I have seen hundreds of cases,

and it is one of the most destructive diseases of young pigs.

Pigs 2 to 3 months old are most susceptible, but occasionally animals over 1 year of age are affected. Under ordinary conditions, the organism, *Salmonella suispestifer*, is not pathogenic. It is my belief that the Chengtu pigs are harboring the organism in the intestinal tract under normal conditions, but if the animals are devitalized in any manner, especially by change of diet, the organism multiplies rapidly and increases its virulence in some unknown manner that causes the disease. Occasional high mortality is the result. In an outbreak among 23 weanling pigs, the usual diet consisted of cooked brewer's rice, but it was suddenly changed to raw feed. In the course of three weeks, 21 animals died. The remaining 2 pigs were stunted in growth.

The symptoms are high temperature (105-107 F.), depression, and inappetence. Conjunctivitis occurs in about 1/3 of the cases. In the beginning there is always constipation, feces are hard and appear in small lumps. Later, diarrhea sets in. In those which died in two or three days, the lesions were septicemic in nature; while in those which died after six or seven days, ulceration of the large intestines was prominent.

**Swine Pox.**—Swine pox has been reported only in Szechuen, but it may occur in other provinces. It is most prevalent in young pigs of 20 to 30 lb. The pox usually develops where the hair is scanty, but sometimes it occurs in the thorax and the abdomen; the hind quarters are seldom the site of infection.

The symptoms are elevation of body temperature, depression, and inappetence. Slight itching is also observed. The pox lesion occurs singly, and occasionally in clusters. If the animal rubs against any hard object, ulceration usually results, undoubtedly due to extraneous bacterial infection.

The animal recovers uneventfully even without treatment. The malady seems to be a benign infection.

**Anthrax.**—Although this disease is not so prevalent in swine as in horses and cattle, isolated cases have been reported, especially in the so-called "anthrax district." The onset is sudden; the infected animal has a high temperature, complete anorexia, and severe dyspnea. It usually dies in from

twelve to eighteen hours. If the course of the disease is prolonged for more than two days, edematous swelling of the throat is prominent. The animal shows extreme difficulty in respiration, together with cyanosis of the visible mucous membranes. The tongue is enlarged, bluish-red, and protrudes through the mouth. Near the end of the disease, pure blood may be discharged from the anus. No effective treatment is known.

**Tetanus.**—Tetanus occurs frequently in pigs and is present in all parts of China. It is invariably the sequel of wound infection, such as castration and the practice of perforating the nose of the pig with a ring. I have seen a case in a pig, approximately 10 days old, in a litter of 12; the animal showed typical symptoms of tetanus in the morning and died ten hours later. No evidence of wound was found. Evidently it was infected through the umbilicus.

**Swine Influenza.**—The disease has been reported in Kwei-chow, but no authentic proof has come to the writer's knowledge. I have repeatedly seen cases which resembled swine influenza symptomatically in Chengtu but have not studied the bacteriology of the disease.

**Tuberculosis, Brucellosis, and Actinomycosis.**—These diseases are rare in China. The Shanghai Municipal First Abattoir reported tuberculosis of swine only twice during 1946 and 1947. Abortion in swine is sporadic, and we do not know whether it is a specific infection. Actinomycosis has occurred in man and cattle, but not a single case has been reported from pigs.

### Wild Rabbits as Liver-Fluke Reservoir

Don't underestimate the importance of wild rabbits and hares as hosts of the common liver fluke (*Fasciola hepatica*) is the moral to be drawn from a southern Texas survey made by O. W. Olsen of the U.S. BAI (*Parasitol.*, 34, May, 1948). If the figures compiled in his study of over 300 rabbits are a criterion, it may be assumed that about one-fourth to one-third of the free-running rabbits in fluke-infested areas harbor and spread this parasite, not to mention that they, too, suffer from its ravages. In addition to being able to maintain liver-fluke infection on ungrazed areas for several years, rabbits serve to intensify it when grazing with cattle and sheep.

## U. S. Bolsters Defenses Against Foot-and-Mouth Disease

Plans are being pushed on both sides of the border to cope with the foot-and-mouth disease problem.

*New Co-Director Appointed.*—In Mexico, Mr. Harry H. Johnson, of Houston, Texas, assumed the post of co-director of the joint Mexican-United States commission on June 15, replacing Dr. M. S. Shahan. Unconfirmed reports state that Dr. Shahan will head the new federal foot-and-mouth disease research laboratory, recently authorized and tentatively planned for construction on Prudence Island, off the coast of Rhode Island.

Livestock interests and government officials have expressed satisfaction over Johnson's appointment as co-director, which carries, also, the title of "special assistant to the Secretary of Agriculture," implying that he is responsible directly and only to the Secretary for his actions. Observers point out that he is a successful business man, having served in an executive capacity with the Gulf Oil Co., as well as a soldier and a noncareer diplomat experienced in the governmental way of doing things. Among several decorations he received for his Army service in two world wars—during which he rose from the rank of private to major general and to the position of military governor of Rome in World War II—is the Order of Military Merit, First Class, the highest decoration Mexico awards a foreign colleague. As wartime commandant of Fort McIntosh on the Texas-Mexico border, he became acquainted with many officials and army men of Mexico, and these contacts are expected to help him in his present assignment.

At a press conference held in Mexico City early in June, Mr. Johnson said that the first objective of the new campaign in Mexico had been accomplished by Co-directors Flores and Shahan, namely, preventing the spread of the virus outside of the established quarantine lines. The next phase is now getting under way, he said, the objective of which will be to "depreciate and eradicate the disease."

Before leaving Mexico, Dr. Shahan told newsmen that about 300,000 cattle had been vaccinated. Mexican laboratories are now producing only about 25,000 doses of vaccine a week, but officials hope to increase the weekly output to 150,000 doses. There

are an estimated 5 million cloven-hoofed animals within the quarantined area, about half of which are cattle. (Figuring vaccination of each animal twice a year, it will take about 10 million doses of vaccine annually, assuming no marked change in the extent of infection—or nearly a quarter of a million doses more than Mexico's production goal could provide.)

*Proposed Research Laboratory.*—In the United States, tentative blueprints of the proposed research laboratory are being prepared, under the guidance of the U.S. Bureau of Animal Industry. Department of Agriculture press releases are stressing "super-safety features" of construction and the strict supervision of personnel and animals that will be instituted to prevent the escape of virus.

*Vigilant Inspection of Border and Vehicles.*—The USDA is also keeping a close vigil on the United States side of the border, to bar illegal entry of animals. At the end of 1947, the federal border patrol comprised about 325 men; today, about 600 are on duty, deployed in camps at strategic points and covering their territory with the aid of horses, jeeps, and reconnaissance planes. The men are divided into two shifts of seven hours each, seven days a week, though at certain points the border is guarded on an around-the-clock basis. The patrol operates under authority of the same federal legislation that provides for quarantine measures at seaboard ports handling shipments from countries where foot-and-mouth disease exists.

Working closely with inspectors of the Bureau of Customs and the Bureau of Entomology and Plant Quarantine, which are alert to the foot-and-mouth disease danger, BAI representatives make occasional supplementary inspections of vehicular traffic and baggage carried by tourists and immigrants who may possess virus-infected materials, such as meat, animal by-products, and straw-packed objects. According to a BAI report, not only fresh meats but even bloody spears used in Mexican bull fights have been confiscated. Cloven-hoofed animals that stray or are found smuggled across the border are destroyed with due sanitary precautions. Patrolmen have apprehended between 10 and 170 such animals every month since the federal border defense was started.

Proposals are still under consideration to construct, along appropriate sections of

the entire border, a fence high enough, strong enough, and sufficiently close-woven to block movements of all types of domestic animals and wildlife. It would have to be about 7 ft. high, the upper half of barbed wire and the lower portion of woven wire. "Some objections have been raised to fencing of the kind proposed," the USDA said, "but its value in safeguarding the United States livestock industry appears greatly to outweigh objections."

### Livestock and Poultry Holdings in California

When the nation's veterinarians and their invited guests of other countries hike, hitch-hike, motor, fly, or train-ride to the "Golden Gate in '48," they will be going to a notable livestock center as well as to the famous offerings of the weather bureau. Up-to-the-minute statistics reveal:

Horses .....	130,000
Mules .....	14,000
Cattle, all kinds....	2,764,000
Milk cows .....	912,000
Milk heifers .....	238,000
Sheep and lambs ..	15,112,000
Chickens .....	19,439,000
Turkeys .....	552,000

These, together with the lion's share of the nation's 13,000,000 dogs, sizable numbers of domestic rabbits, milking goats, a countless number of bushy cats, and a much coveted pattern of state food-inspection, are among the exhibits not shown in the invitation to come over the mountains and see for yourself.

### A Lesson in Public Relations

The following editorial from *Hoard's Dairyman* (Feb. 25, 1948) is reproduced because it advocates and describes the kind of relations the AVMA has been supporting for many years through its extensive press and radio contacts, and through the appearance of its officers and special representatives on the programs of livestock and farm organizations.

#### The Vet and the Farmer

We have watched with considerable interest the changing relationship between the veterinarian and the livestock owner. It is a healthy change in that many veterinarians are now becoming more closely associated with dairy herds on a regular basis. Where veterinarians conduct monthly pregnancy examinations of good dairy herds, it is the first step toward a

working arrangement that is of mutual benefit to the livestock owner, the veterinarian, and the entire industry.

Those veterinarians who cling to the philosophy of clothing their work in secrecy and stimulating an air of mystery are not building a practice that will thrive nearly as well as those who take farmers into their confidence and do a thorough job of education.

Veterinarians are a vital segment of our American livestock industry and they should work in cooperation with all other segments. Too often the veterinarian has no contacts with the industry other than his sporadic visits to the farms of his clients. We believe the veterinary practice and the veterinary profession would be well served by veterinarians participating actively in livestock organizations and general farm organizations. We believe they would benefit considerably from speaking, at every opportunity, to local livestock groups. The subject of disease control and herd health is one of the most important and critical problems of our time. The more conscious the dairy farmer becomes of the economic importance of disease control, the greater will be the veterinarian's practice.

When the day comes that veterinarians are active members in the Grange, the Farm Bureau, and breed associations, we can look forward to much more rapid progress in disease control and eradication, thriving veterinary practices, and more profitable dairy herds.

The ultimate control of brucellosis will rest with the veterinarian and the livestock industry, and not until the disease is conquered in animals will it be eliminated as a source of human illness.—*Ill. Health Messenger*.

### Kala-Azar in the U.S.A.

Kala-Azar (= visceral leishmaniasis) has now to be considered in the differential diagnosis of fever in the United States since the disease is known to have been brought in by personnel stationed in endemic areas during and since the war. It is estimated that several hundred thousand soldiers were exposed to *Leishmania donovani* in India, Burma, China, Southern Italy, and North Africa. Justifying the suspicion is a case\* diagnosed critically at the Army Air Forces Regional Hospital at San Antonio, Texas, after an incubation period calculated to be eighteen months. The diseases amid which kala-azar may be overlooked are brucellosis, typhoid and paratyphoid fevers, malaria, typhus, bacillary dysentery, and tularemia.

\*Levy, Jr., Moise D., and Yiengst, Marvin J.: Kala-Azar. *J.Am.M.A.*, 136, (Jan. 10, 1948): 81-84.

## Observations on Arabian Horses in the Near East

FRED B. PULLING, D.V.M.

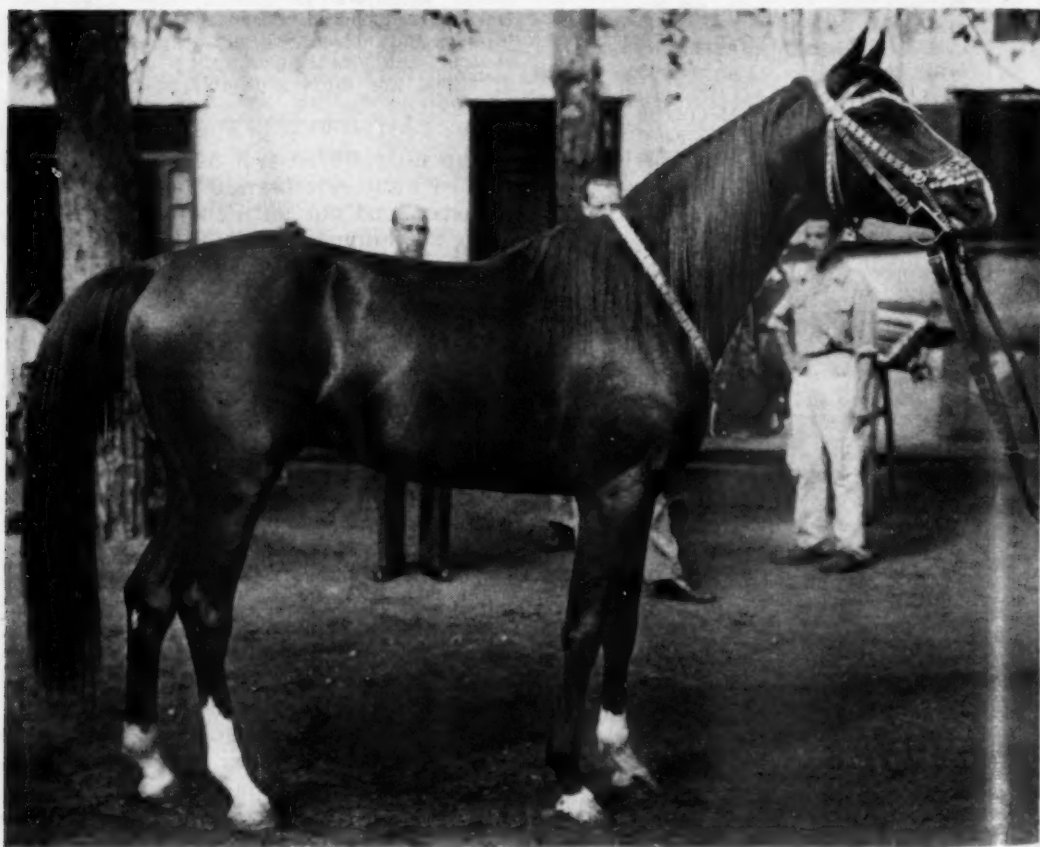
*Atascadero, California*

ONCE in every decade, someone from the United States or Great Britain journeys to the Near and Middle East in quest of Arabian horses for importation. In the early nineteenth century, Burkhard, a world traveler, published a book in England describing Arabian horses in the Near and Middle East. Sir Wilford and Lady Ann Blunt who spent much time in the Near and Middle East imported Arabian horses to England. They propagated these strains in England and their work is being continued by their daughter, Lady Wentworth.

Most of the American strains are direct descendants of those bred in England. It

is agreed among horse breeders that the best Arabian horses in the world are found in the United States. Credit is due William Robinson Brown of Burlington, N. H., as an importer and for the good selections he made. During a trip to England and the Near East in 1927, he bought 3 horses in Syria but the best ones he secured in England. He covered the same area in the Near East as the writer traversed on his recent journey (Egypt, Syria, Lebanon).

In 1904, Homer Davenport, well-known newspaper cartoonist, purchased and imported 20 Arabian horses from Syria. Carl Raswan of Albuquerque, N. M., spent sev-



—International News Photos

Fig. 1—Jamil, a 3-year-old chestnut Arabian stallion purchased and imported by San Simeon stables, Hearst Ranch, San Simeon, Calif.

eral years in the Near and Middle East exporting horses to the Balkans and the United States. All importers of Arabian horses to England and the United States, including the members of the recent expedition, agree that these horses in their native lands have not changed since the early nineteenth century.

At the present time, there are 600 registered Arabian horses in England and approximately 3,000 in the United States. Those in the United States are small in number when compared with our total horse population of 11,750,000; yet if one thoroughly investigated the ancestry of all light horses in America, one would find that they have a preponderance of Arabian blood. Even the wild horses of the West have such ancestry.

During the 400 years that the Arabs occupied Spain, many of their horses were crossed with the native Spanish horses. When the Spaniards drove the invaders out, many of their fine horses were left behind. Later, the Spaniards brought the first horses to the western hemisphere and these were the ancestors of the feral or wild horse of the West.

The ancestry of the Thoroughbred can be traced to three Arabian stallions imported to England by King Charles II. These stallions produced such fine offspring, which were consistent winners, that race-horse breeders would use only their progeny for sires. Thus the Thoroughbred had its origin.

For the past fifteen years, the stables owned by William Randolph Hearst of San Simeon, Calif., have bred and raised many fine Arabian horses which, for the most part, have their origin in the English strains.

Early last year, Mr. Hearst decided that new blood should be added to his stables to further improve the horses. He commissioned Preston Dyer, manager of his San Simeon stables, to journey to the Near and Middle East and import new stock. Mr. Dyer was accompanied by John Williamson, a commercial photographer of Arcadia, Calif., and the writer. The first country visited was Egypt where many purebred horses were seen. The Arabian horse in Egypt is used for nearly all draft work and for drawing carriages in the cities. These small horses pull unbelievably heavy loads. Horse races are run in Alexandria during

the summer and in Cairo during the winter. The horses are purebred Arabians and must meet the high standards set forth by the Egyptian Jockey Club. The races are run on turf and clockwise around the track, which is opposite to the direction of races run in the United States.

The Egyptian Ministry of Agriculture under Fuad Abaza Pacha, director general, is doing fine work in improving horses in general and the pure Arabian stock in particular. A stud farm of about 50 Arabian stallions and a breeding farm with many good mares are maintained. The stallions are used to improve the quality of horses



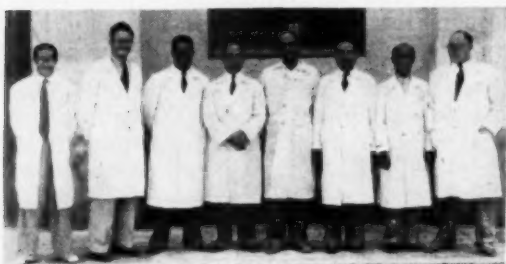
—International News Photos  
Fig. 2—A Ruula tribesman and his Arabian mare in the Syrian Desert.

by breeding them to the native or so-called country mares. The Ministry charges a stud fee of 35 piastres, or about \$1.50. Both the stud farm and the breeding farm have full-time veterinarians in attendance.

The Ministry also maintains a well-staffed veterinary pathology laboratory. The laboratory staff is headed by Zaki Mohamed, F.R.C.V.S., M.V.Sc. (England), who has done outstanding work in the fields of bacteriology and pathology. Although the present laboratory is inadequate, it produces all biological products used on the Ministry's horses, cattle, camels, etc. Dr. Mohamed showed the writer the blueprints of the new pathology laboratory which will be constructed in the near future. This building will be extremely modern in construction and equipment. The main research work being conducted in connection with horses is in the field of sterility. Extensive

work is being done in the use of hormones in treatment of this condition.

With the exception of the race horses and those owned by the Ministry of Agriculture, the average horses were poorly fed. They were thin and showed definite signs of malnutrition in early life. This condition is manifested in enlarged joints and tendons. The average horse receives a ration of poor quality hay and chopped hay which looks like chaff from threshing grain. Most American horses could not survive



—International News Photos

Fig. 3—Members of the Veterinary Pathology Laboratory staff, Ministry of Agriculture, Giza, Egypt. Left to right: Drs. G. Mohamed, M. Sani, N. A. Agroudi, A. Soliman, M. N. Abd El Ghaffar, A. M. Ghoul, H. S. Awany, and Zaki Mohamed (chief bacteriologist and pathologist).

long on this diet; yet the Arabian horse gets by, proving again the stamina of the breed.

From Egypt we flew to Damascus, Syria. Here we looked at approximately 500 horses owned by the Ruala tribe. This is the largest of the Bedouin tribes. We were invited by His Highness, Emir Fawaz Shaalan, to his desert headquarters where we were entertained in true Bedouin manner. Lunch was served in his tent to about 300 persons, in relays of 60 or 70. The food was heaped on huge shallow vessels about 8 ft. across, and was a delicious concoction of rice and mutton. The diners sat on Persian rugs and used their hands for knives and forks. A hot, sweet tea was served after lunch.

The Bedouin horses are desert bred and spend their entire life in the desert regions of Syria and Iraq. Many of these horses are of pure families, although they were of poorer quality than those from crossed families. The pure families lacked the classic-type Arabian head which is short, square muzzle, and has large eyes with breadth between the eyes, small ears,

prominent dish of nose, large jaw, and clean throat. Owing to the sparse feed in the desert, these horses also showed evidence of malnutrition. The writer saw no indications of glanders, surra, dourine, or epizootic lymphangitis. The shoes with which the horses were shod were interesting. They consisted of a metal plate which covered the sole and frog of the foot. In the center of the plate was a hole about  $\frac{1}{4}$  in. in diameter, which allows fine sand that enters at the heel to escape. This type of shoe gives the foot added protection from sand and rocks.

It was a common sight to find 7 or 8 horses hobbled by one hind foot and tied to a rope stretched between two stakes. This method was used in preference to tying with a halter and shank. Another method of restraint is a hobble which fastens to the foreleg and connects to a hobble on the hind leg on the same side, giving the animal some freedom but keeping it from wandering off. From birth to death, these horses are constantly hobbled except when ridden.

We saw no geldings. Even the most fractious stallions are never castrated. It is the writer's observation that the quality of the horses would be improved if the less desirable stallions were castrated. No written pedigrees are kept; the ancestry of each horse is passed from father to son by word of mouth. Most authorities agree that the endurance which the Arabian horse possesses is due not to selective breeding but to nature's law of the survival of the fittest in the rugged desert life.

Finding no horses in Syria which met our qualifications, the group next journeyed to Beirut, the capital of Lebanon. In Beirut and the surrounding area are many stables of fine Arabian horses used for racing. Most of these are directly, or one or two generations removed, from the desert. Here we saw countless Arabian horses of the classic type, many from the stable of Henri Pharoan. We purchased 6 stallions and 8 mares in Lebanon.

In general, the horses in Lebanon were in excellent condition, owing to an abundance of good feed. The ration fed to race horses consisted of fresh-cut, unwilted alfalfa and a grain mixture of ground oats and barley. In the winter months, the green feed is replaced by alfalfa hay. Each horse receives a daily quota of carrots, winter and

summer. The amount of water is limited to two pails per horse per day. Their water requirements are less than most horses. Ringbones, enlarged joints, and enlarged tendons were not seen in yearlings and 2-year-olds fed in this way. Among racing Arabian horses, the incidence of serious lameness was not as great as among Thoroughbreds on American tracks. Only a few horses had scars from firing and blistering which are used there, as in the United States, in treating lameness. In one stable of 60 racing Arabians, only 2 had required firing for bowed tendons; both were making a nice recovery. This work was done by a French veterinarian who had a private practice on the track. Private practice is rare in the Near East due to economic conditions.

The types of blemish seen most commonly in these horses, particularly among 2-year-olds that were raced, were osselets and bucked shins of minor nature. Mud packs and an iodine sweat paint are used to reduce these conditions.

Penicillin and sulfa drugs are used extensively in the treatment of infections. Nowhere did the writer find a veterinarian who was not using the latest and most modern methods of treatment. The language handicap prevented more detailed accounts as to methods and treatments used.

A description of conditions and problems which arose on the 10,000-mi. trip by ship and train from Beirut to San Simeon will further emphasize the stamina of these horses. They were loaded on the foredeck of the "Transylvania" in individual boxes 3 ft. wide and 8 ft. long. These boxes were constructed in Beirut of the best material available, which was none too good as we later experienced. It took six days of sailing to reach Marseille, where the horses were unloaded and stabled. No injuries were encountered in loading and unloading. The horses were stabled in Marseille for twenty-two days while waiting for shipping space to New York. The weather was damp and about 25 degrees cooler than Beirut. None of the horses had a cold or distemper, as one would expect with the sudden change of climate. The only feed given was hay; even the best obtainable was of poor quality and cost \$16 a bale. Aboard the "S.S. Marine Flier" in Marseille, the horses were placed in the hold in their boxes. The temperature was regulated by the air condi-

tioning system at about 70 F. The voyage to New York took twenty days. The only difficulty experienced on this part of the trip was a two-day hurricane in the Atlantic, when the wind blew at about 80 mi. per hour and the waves were 60 ft. high. The ship rolled 35 degrees to port and then to starboard about every three minutes. The horses had a great deal of trouble keeping their footing and several got cast in their boxes. The only bad results were a few bruised knees and hocks, plus several broken boxes. None of the horses showed any signs of seasickness.

On arrival in New York, in freezing temperature, the horses were permitted to rest for five days in open stockyard pens, no better accommodations being available. Even though the horses received no immunizing agents, they did not contract distemper. The train trip took four days from New York to San Simeon *via* Chicago and Omaha. The express car was well ventilated and the steam heat would not work. As a result, the temperature was subzero on some portions of the trip. Yet again, no trouble was encountered with colds.

The horses arrived at San Simeon in good condition in spite of their difficult trip. In the seven weeks, they had lost a great deal of weight on their diet of hay. Injuries were minor and soon healed. It is the writer's belief that any other breed of horses could not have survived a similar trip as well. This importation should definitely improve the strains of Arabian horses in America by the addition of new blood lines. The quality of the horses in the Near and Middle East has not changed in the last one hundred years. The crossing of strains produces a superior type of Arabian horse as compared with strains which are supposedly kept pure. The existence of pure families is doubtful, as the owners of Arabian horses in Syria could not produce written proof of ancestry. Also, when questioned about ancestry, they were in doubt or would give a particular horse a certain family name and, at a later date, assign a different family name to it. The use of pure Arabian stallions on country-bred mares will definitely improve the offspring by giving them refinement, stamina, and endurance. This has been proved at the San Simeon stables by crossing Arabians with range mares of various breeds.

# SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

## Method of Repair of Femoral and Humeral Fractures

BYRON W. BERNARD, V.M.D.

*Cincinnati, Ohio*

FOR THE PAST two years, we have strived with considerable disappointment to find a successful uncomplicated manner in which to repair femoral and humeral fractures. Considerable embarrassment has resulted from time to time in trying to explain to a client why these particular fractures are so difficult to repair.

We believe that anyone with a moderate degree of surgical skill, with inexpensive instruments, and with a minimum of effort,

enough to pass through the medullary canal without binding too tightly against its walls. In young subjects, a common Steinman pin will suffice. The anesthetic used is nembutal or pentothal. We prefer inser-



Fig. 1—Biceps and quadriceps muscles spread to expose the fracture.

can get remarkable results in the healing of a fractured femur or humerus by using the method described here. The instruments used are alyce forceps, retractors, scalpel, hammer (ball peen), and a suitable pin.

A stainless steel bar can be easily made into a suitable pin. A round bar can be flattened on the end and sharpened. Theoretically and mechanically, a bar of triangular cross section would be best. The flare at the pin's end should generally be wide



Fig. 1a—Showing position when sharp end of pin is introduced into the trochanteric fossa.

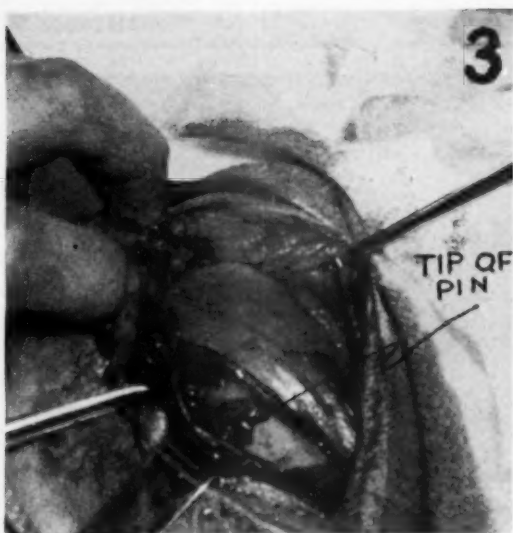
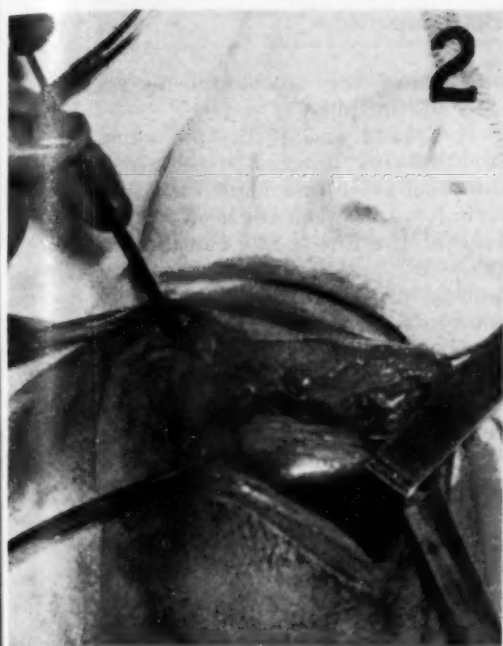


Fig. 2—The pin inserted, and being driven into medullary space.

Fig. 3—Shows point of pin protruding from upper fragment.

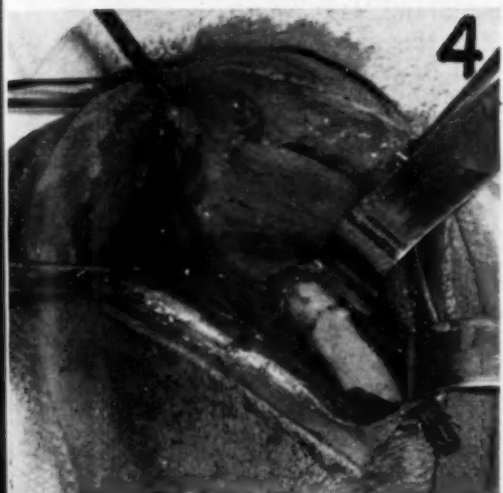


Fig. 4—Proximal and distal fragments in apposition and held in line by pin which has been driven through the shaft.

Fig. 5 and 6—Showing pin (left) protruding through the skin while (right) the fracture forms a callous and knits firmly.



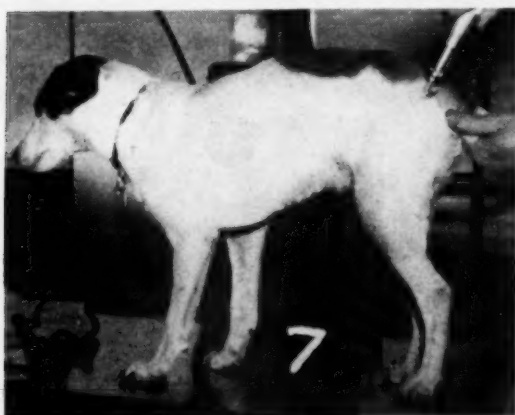


Fig. 7—Kirschner chuck applied for removal of pin.

tion of a tracheal tube under barbiturate anesthesia.

Clip the lateral face of the thigh extending up over the tuberosity of the trochanter. Scrub the area, paint with iodine, and wipe clean with alcohol.

#### OPERATION

Incise the skin over the fracture area. Now the biceps femoris and the quadriceps femoris are easily spread, with blunt dissection, down to the femur, over the fracture site (fig. 1). Next palpate the trochanter major. If the fracture is in the proximal half of the femur, the original incision may be extended to about 2 in. above the trochanter major. If the fracture is in the distal half of the bone, it is necessary only to make a small incision

just above the trochanter to admit passage of the pin.

The sharp end of the pin should be introduced just medial to the tuberosity of the trochanter and sunk into the trochanteric fossa between the neck of the articular head of the femur and the trochanter (fig. 1a). With sharp, sound driving, the pin quickly passes through the matrix of the bone into the spongy substance and marrow of the extremity and then into the medullary cavity of the shaft of the bone (fig. 2). The pin should be driven slightly beyond the fracture surface of the upper fracture segment (fig. 3). By manipulating the free end of the pin, force the upper segment with the distal segment back to form a V in the bone, at the same time letting the protruding sharp end of the pin enter the medullary canal of the distal segment. Then with the thumbs the V can be inverted to approximate the proximal and distal segments (fig. 4).

At this point, the pin is again driven until its point is firmly embedded into the spongy distal end of the femur. This is

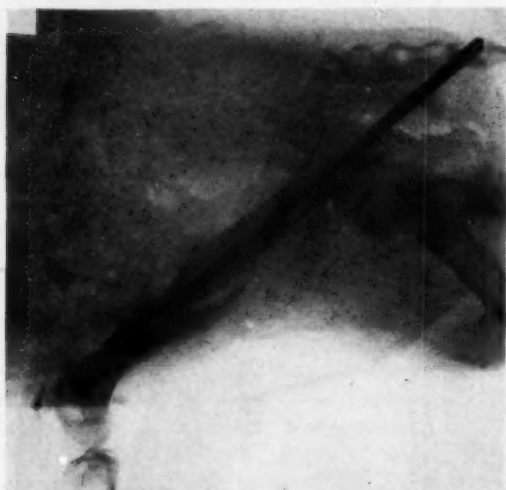


Fig. 8 (x-ray)—The fracture at the end of two weeks.



Fig. 9 (x-ray)—The fracture one month after reduction.

easily recognized by the amount of resistance offered to its progress. The surgeon should do his own driving.

In young subjects, the pin can be left to extend through the skin, facilitating its removal at the desired time (fig. 5, 6): However in dogs showing evidence of rachitis or osteomalacia, and in very old subjects, we cut the pin off as close as possible to the trochanteric protuberance to be left permanently in the bone.

The fracture area and adjacent muscles are sprayed with crystalline penicillin and sulfathiazole (Wyeth). The skin is closed with a subcutaneous lock stitch or mattress sutures.

#### POSTOPERATIVE CARE

Often much swelling is present for two days following surgery but some subjects show no appreciable swelling. The daily administration of 300,000 units of penicillin in oil is recommended for three or four days postoperatively.

The patient is usually putting some weight on the fractured member within two days and in five days may walk freely on it.

X-ray pictures should be taken two weeks and one month after the operation (fig. 8 and 9).

Usually, in a young, healthy subject, the pin can be removed at the end of one month. This can be done easily and with little discomfort to the patient by merely tightening a Kirschner chuck or a common carpenter's brace on the protruding end of the pin, and gently turning one way then the other while exerting traction on it (fig. 7).

#### SUMMARY

The ease of application makes this procedure quite useful in this troublesome type of fracture. Safety is an added feature since there is no danger of splitting a bone. Remember both ends of the pin are firmly embedded in bony substance making it possible for the patient to travel in comfort without any danger of the bone being crooked or bent at the fracture site. A callous is quickly formed due to the intimate and immobile apposition of the segments. Application is much quicker than with any other method of pinning we have tried, and has exhibited fewer complications.

Old subjects may wear the pin permanently, thus giving the bone adequate time to knit.

The same technique may be used for repair of the humerus.

#### Multiple Births in Dairy Cattle

That "twinning is definitely an undesirable character in dairy cattle, and efforts should be made to reduce its incidence by proper breeding methods and selection" is the conclusion of Pfau, Bartlett, and Shuart, of Rutgers University, from records of multiple births over a period of fifteen years in the Holstein-Friesian herd at the New Jersey experiment station (*J. Dairy Sci.*, 31, April, 1948: 241-245). The herd is self-containing and inbreeding is practiced to a high degree.

During the fifteen-year period, there were 937 parturitions and abortions, of which 37 were twins and 2 were triplets. The number of multiple births was low at the first parturition, but from then on it increased with age, increasing abruptly at the second parturition, gradually reaching a peak at the fifth, sixth, and seventh parturitions, and seemingly decreasing thereafter. The gestation period for twins was about seven days less than for single calves. The mean length of gestation for male pairs was greater than that of sexually mixed pairs and considerably greater than that of female pairs.

Heredity seemed to play the controlling rôle; environment was relatively unimportant. The authors' observations suggested that twinning exhibits Mendelian segregation and is probably under the control of a small number of genes—that the character of twinning should be recessive with gene interactions or modifications. Assuming the validity of these observations, it should be possible to considerably influence twinning in dairy cattle in either direction.

The case against encouragement of twinning pointed up these disadvantages: higher mortality at birth and lower vitality throughout life as compared with single calves; shortened gestation; greater parturition difficulties with increased incidence of retained placenta; decreased conception rate and lower breeding efficiency.

Glucose tolerance may be impaired in the postoperative state.

# Ordinary Spool Cotton in Small Animal Surgery

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THE SEARCH for the ideal suture material is as old as the science of surgery itself. As described by the great American surgeon, Halsted,<sup>1</sup> an ideal suture material is one that is absorbed in three days but holds for ten days. This optimum is yet to be reached, although many improvements have been made up to the present time.

Until three years ago, the writers employed only absorbable material for buried sutures. At that time, in a few preliminary trials, ordinary spool cotton was used in place of catgut. The results obtained were so satisfactory that cotton was employed more and more often, until to date 1,246 surgical procedures have been performed using this material for buried sutures.

The use of nonabsorbable buried sutures is not new, for it was described in 1913 by Halsted.<sup>1</sup> More recently, Meade and Ochsner<sup>2, 4</sup> and Meade and Long<sup>3</sup> demonstrated that ordinary spool cotton had many desirable characteristics as a suture material and could be used to advantage in buried sutures. Thorek,<sup>5</sup> Eddy,<sup>6</sup> Sparkman,<sup>7</sup> and Sparkman and Williams<sup>8</sup> also reported favorably on their experiences with cotton in human surgery.

## ADVANTAGES OF NONABSORBABLE SUTURES

Cotton has certain definite advantages over the other types of suture material commonly used in small animal surgery. The tissue reaction to cotton is considerably less severe than to catgut. This was ably demonstrated by Farris<sup>9</sup> who, measuring tissue reaction by implanting a small piece of each suture material in the eye of a rabbit, found considerably more irritation set up by the catgut than by cotton.

Wounds closed with absorbable sutures heal by "wet healing," those closed by nonabsorbable sutures heal by "dry healing." The wet type of healing is associated with excessive fluid exudate and delayed appearance of fibroblasts, while the dry type of healing produces a minimal amount of exudate and fibroblastic proliferation appears early. Since excessive exudation and delayed fibroblastic proliferation delay wound healing, it can readily be seen that the wound sutured with a nonabsorbable suture

will heal more quickly than one where the absorbable type of suture is used.

Meade and Ochsner<sup>4</sup> showed that while dry, unsterilized cotton has less strength, size for size, than catgut, silk, or linen, its tensile strength is less altered by sterilization than is that of the other suture materials; and, after implantation in the tissues, it showed much less impairment of tensile strength than did any of the others. Also, because of cotton's high coefficient of friction, knots hold well. Cotton is stable on exposure to heat and moisture. These workers also stated that, in a large series of human cases, cotton caused no edema or allergic response, and stimulated less cellular tissue reaction than other suture materials. Its compact structure apparently prevents ingrowth of tissue and thereby lessens the incidence of suture sinuses. Cotton in the abdominal cavity apparently causes no reaction. Following four abdominal operations where there was an opportunity to perform an autopsy some months after surgery, no evidence of tissue reaction was seen. Finally, the low cost of cotton, while not of paramount importance, is a factor that should not be overlooked.

Halsted<sup>1</sup> outlined six rules for the use of nonabsorbable buried sutures. Any violation of these principles may result in unsatisfactory sequelae. He stated:

- 1) Use interrupted sutures only.
- 2) Never use coarse suture material.
- 3) Use a greater number of fine stitches rather than a few coarse ones.
- 4) Never bridge over dead spaces, as a chord subtends an arc.
- 5) Use transfixion sutures in ligation, as fine material can be used this way.
- 6) Avoid the combined use of buried absorbable and nonabsorbable sutures.

## PROCEDURE

The continuous cotton suture should be avoided, for if infection occurs, it will suppurate along its entire length. Coarse material, especially in the laparotomy incision, is sometimes not well tolerated and has been found in a few cases to result in a fistula which would not heal until the

suture was removed. It is better, therefore, to use a greater number of fine stitches, as Halsted stated, instead of fewer coarse ones. Bridging over a dead space with cotton will leave a sac where tissue fluids can accumulate. This is poor surgical practice with any kind of suture material. The use of transfixion sutures in ligating large pedicles or blood vessels enables the surgeon to use finer material. Halsted does not recommend the use of absorbable and nonabsorbable sutures in the same location, although Thorek<sup>5</sup> stated that he and his coworkers have used cotton and catgut in this manner and "have had no cause to regret it."

Cotton buried sutures are as successful in cats as in dogs, although occasional swelling of the laparotomy incision occurs in cats. This will, however, subside in a few days. A very satisfactory subcuticular stitch can be made in both species by using an interrupted stitch rather than the continuous one generally employed. The peritoneum, muscle, and fascia may be brought together with one layer of sutures, if desired, with no untoward effects, although inserting separate rows in peritoneum, fascia, and skin is preferable.

Meade and Long<sup>3</sup> and Thorek<sup>5</sup> prefer cotton to catgut or silk in infected wounds. Since no absorption of the suture takes place, as long as adequate drainage is established the edges of an infected wound will remain in apposition and final healing will result with less distortion than would be possible with absorbable sutures.

#### SELECTION AND STERILIZATION OF COTTON SUTURES

Either plain or mercerized cotton may be used; the mercerized variety has greater tensile strength. Black is to be preferred, for this color can be more easily seen than white when stained with blood or tissue fluids. Number 60 or 70 is a satisfactory size for ligation of blood vessels, and numbers 40 to 70 for approximation of peritoneum and fascia, depending upon the size of the patient. The finer sizes, 60 and 70, are best for intestinal work, in the uterus and bladder, and for blood vessel ligation. For skin closure, cotton is quite suitable, although it does possess some capillarity. If there is skin tension, number 30 is more desirable; but sizes 50 or 60 will be found satisfactory for most purposes in small ani-

mals. Number 20 crochet cotton may be used to advantage for retention sutures.

Cotton can be sterilized by boiling in water for twenty minutes or autoclaving for fifteen minutes at 15 lb. pressure. Some shrinkage will take place on exposure to moist heat and, if sterilized on a hard, unyielding spool, the contraction will weaken or rupture the fibers. For sterilization, the necessary quantity can be wound on a small piece of rubber tubing, so that subsequent contraction will simply compress the tubing slightly. Repeated sterilization, however, will appreciably weaken cotton.

Certain precautions and changes in technique are necessary when cotton is first used by the operator accustomed to catgut. Halsted's tenets, as outlined above, must be followed. In tying, it must be remembered that the tensile strength of cotton is less than that of catgut, but with a little practice the operator soon gains the "feel" of the material. Sutures should be cut as close to the knot as possible.

#### RESULTS

The majority of the 1,246 operations in which ordinary spool cotton was used for buried sutures consisted of routine ovariectomies, but also included were enterectomies, gastrotomies, splenectomies, hysterectomies for relief of pyometritis, hysterotomies, vesicotomies, herniotomies of all types, mammectomies, limb amputations, and repair of traumatic wounds. The advantages of cotton are manifold. A patient can be released from the hospital days earlier than would otherwise be possible, for the nonabsorbable suture will not be absorbed too early, allowing the incision to open. The writers have routinely released ovariectomies one or two days after surgery, without bandaging. In more than 1,000 cases, no difficulty has resulted from this practice.

#### SUMMARY

Cotton is inexpensive, readily available, easily sterilized, causes little tissue reaction, and is facile in the hands of the surgeon. It can be used to excellent advantage in small animal surgery and merits an important place therein.

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### Artificial Insemination Increasing in Leaps

"This year," says *Farm Journal*, "1,710,797 cows were artificially bred by 886 co-operative associations in 42 states, which is nearly 7 per cent of all the dairy cows in this country."

In New Jersey, 20 per cent of the milk cows will be artificially bred in 1948. Wisconsin has 332,861 cows enrolled, New York 193,200, and Pennsylvania 151,513. Increases are shown also in Minnesota, Ohio, Iowa, Illinois, Michigan, and Missouri.

It has become possible to breed from 10,000 to 15,000 cows to 1 bull in a single year through improved methods of diluting semen. Among the prospects is 100 inseminations from one ejaculation compared with six a few years ago.

**Glycogenolytic Effect of Anesthetics.**—Certain anesthetics have a glycogenolytic effect—accelerating the conversion of liver glycogen into blood sugar and thereby depleting the glycogen reserve. Therefore, proper preoperative diets are an important factor in building rich hepatic reserves as a defense against liver injury by anesthetics. Regardless of how well the patient is nourished, protein and glycogen reserves are quickly exhausted, making it necessary to resort to parenteral glucose feeding as soon as possible after surgery to prevent hunger ketosis. Severe ketosis may lead to acidosis and, in turn, to depletion and derangement of the electrolyte pattern of the tissue cells, thereby inducing smooth muscle spasm.—*Ann. Surg.*, March, 1948.

Surgical sutures can be made from chicken feathers.

### Genetic Aspects of Quintuplet Calves

The quintuplet calves (United States, England, Russia, China, France) born at Fairbury, Neb., on November 20, 1945, apparently developed from five different fertilized eggs. Tests for inherited cellular antigens, however, showed all of the calves to have the same blood mosaic. Reagents for 40 inherited cellular antigens were used in these tests. Fourteen antigens were found in the parents, of which two were absent from the bloods of the calves, but the remaining 12 antigens found in either the sire or the dam were present in all of the quintuplets.

The authors concluded that placental anastomoses had given all five embryos a common circulation. Therefore, wholesale exchange and intermixture of circulating cells among the embryos was effected. The exchanged cells became established in the hemopoietic tissues of the quintuplets, with the result that the circulating erythrocytes—the cellular descendants of these exchanged elements—represent a genetic mosaic, similar in all of the calves.—*J. Hered.*, 37, (Oct., 1946): 291-297.

**Feeding Bulls for Artificial Breeding.**—A concentrate mixture containing approximately 12 per cent of protein, plus mixed hay containing about 10 per cent of legumes, apparently will supply mature dairy bulls used routinely in artificial insemination with enough protein to maintain body weight and satisfactory semen production. A feeding schedule based on this tentative protein standard calls for 1 lb. of hay and 0.4 to 0.5 lb. of concentrate daily per 100 lb. of body weight.—*Branton and others, J. Dairy Sci.*, Dec., 1947.

**An Outstanding Objection to Artificial Insemination.**—In an article entitled "Advantages and Inconveniences of Artificial Insemination," Cordier (*Ann. Méd. Vét.*, 91, 1947: 49-82) stresses the excessive reduction in number of sires, which leads to a too high level of inbreeding, as an outstanding objection to the too liberal resort to artificial insemination instead of natural fecundation. For this reason, the author contends that artificial insemination ought to complement, not replace, natural breeding practices.

# Collection of Sheep Blood by Intracardial Puncture

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IN THE LABORATORY, sheep blood is commonly used as a source of red blood corpuscles for the preparation of hemolytic amboceptors in the complement fixation test, and as a source of whole blood or serum in the preparation of bacteriologic mediums. In veterinary research, blood samples from sheep are often desired in the

recognized English and American textbooks of clinical laboratory methods, both human and veterinary, shows no method other than that of jugular venipuncture for the collection of sheep blood.<sup>1-6</sup>

There are a number of disadvantages inherent in the bleeding of sheep from the jugular vein. The sheep has a heavy coat

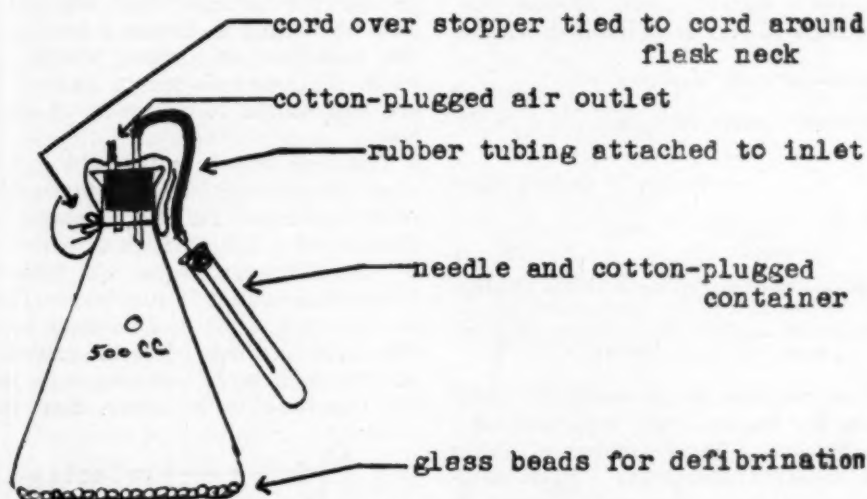


Fig. 1—Equipment used for the collection of large, sterile blood samples.

study of ovine infections or metabolic diseases. Veterinary diagnostic procedures may require such samples in addition to other materials as an aid to disease diagnosis. Therefore, a rapid, easy method of obtaining blood samples from sheep would be of value to the bacteriologic or serologic worker, the veterinary research worker, the veterinary diagnostician, and to the practitioner of veterinary medicine.

Apparently the collection of blood from the jugular vein of sheep is the established practice of laboratory workers and veterinarians in both the United States and England. A survey of the instructions in

of wool over the jugular furrow which must either be removed by clipping or pushed away from the site by the hands prior to the insertion of the bleeding needle. Clipping is a tedious, time-consuming procedure, and, if not carefully done with sharp scissors, leaves a stubble which is a hindrance to the disinfection which is a prerequisite to the collection of sterile blood. Should the site not be clipped and the heavy wool which covers the region parted and pushed away with the hands, the bleeding site is obscured from sight and touch in such a manner as to hinder efficient bleeding. Also, one must pass the bleeding needle through or adjacent to the dirty wool, which is conducive to contamination and to the collection of unsterile blood. The ovine jugular vein approximates the diameter of an ordinary lead pencil, or less than

From the Wyoming Agricultural Experiment Station, Laramie.

Approved for publication by J. A. Hill, director, Wyoming Agricultural Experiment Station, Laramie.

1 cm., and does not offer a large target for a 15- or 16-gauge bleeding needle. The skin overlying the jugular furrow is very loose and the clipped or exposed site on the skin often becomes displaced in relationship to the underlying vein, thus rendering bleeding difficult. This is especially true should difficulty in restraining the animal be experienced with the neck and head of the animal becoming twisted.

During the past year, this department's research project on vibronic abortion in sheep has required that numerous blood samples be obtained from experimental sheep. For this purpose, these samples need not be sterile, but they must be free of extraneous material and should consist of at least 15 cc. per individual sample.

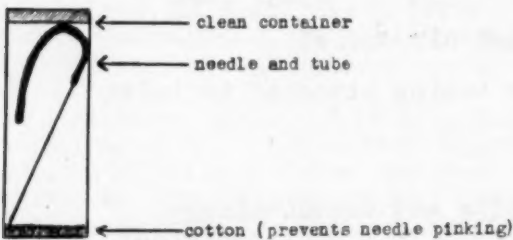


Fig. 2—Equipment used for the collection of small, nonsterile blood samples.

In addition, routine requirements of blood and serum for bacteriologic mediums have necessitated that a large amount of sheep blood be collected aseptically. Such samples for bacteriologic use are collected in amounts of from 100 to 200 cc., depending upon need, and must be sterile.

In collecting blood by intracardial puncture, the following technique is used. The sheep is placed with its right side downward and with its left front leg drawn forward. A 3- or 3½-in. needle of at least 16-gauge or larger is inserted into the fourth intercostal space in a direction downward, slightly forward, then upward. The site of insertion should be about 4 in. dorsal to the ventral side of the sternum, and beneath and just forward of the normal position of the point of the elbow or olecranon. The site is almost free of wool and only slight additional clipping is necessary. The needle should be inserted until the pulsations of the heart can be felt along the needle. Usually there is a flow of blood simultaneous with passage of these pulsations.

Various lengths and gauges of needles

have been used. A needle smaller than 16-gauge offers considerable resistance to blood flow while a needle larger than 12-gauge increases greatly the possibilities of traumatic damage to the heart. In all of our trials, we have found that a 3½-in. needle is of sufficient length to penetrate the heart chambers, and that a longer needle offers no advantage.

The equipment necessary for intracardial bleeding is dependent upon the type and size of sample desired. For serologic purposes, a small, nonsterile sample is sufficient, while for culture mediums and other bacteriologic purposes, a larger sterile sample is necessary. We have used the following types of equipment and have found that illustrated in figure 1 best suited for the collection of larger, sterile samples, while the types shown in figures 2 and 3 are best suited to collection of small samples.

The type shown in figure 1 is best used when large quantities of sterile blood are to be collected for bacteriologic use. It consists of a 500 cc. flask to which is fitted a 3-in., 15-gauge needle. A glass, cotton-plugged air outlet is provided. The needle is connected to the flask inlet by means of a 2½- or 3-in. piece of ⅜-in. rubber tubing. In collecting large samples, it is necessary for the flask to be lower than the blood

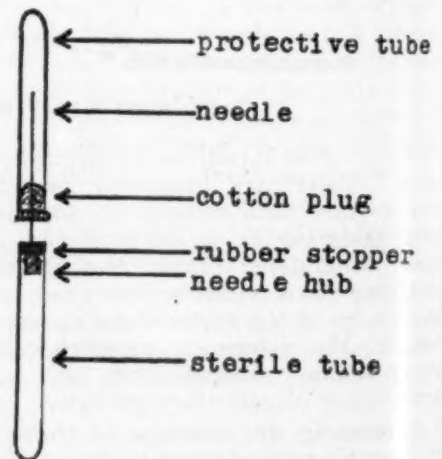


Fig. 3—Equipment used for the collection of small, sterile blood samples.

source. The rubber tubing provides a flexible connection which permits manipulation of the flask into a position favorable to the rapid flow of blood from the heart.

The apparatus shown in figure 2 may be

used when a relatively small (15 to 20 cc.), nonsterile sample is desired. It consists of a 3- or 4-in., 14- or 15-gauge hypodermic needle to which is fitted a 4-in. length of  $\frac{3}{8}$ -in. rubber tubing. In using this, the needle is inserted into the heart, and lips of the collection bottle or tube are placed over the free end of the rubber tube. In use, the collection tube must be held at a lower level than that of the needle hub so as to facilitate blood flow into the tube.

When a small, but sterile, sample of blood is to be collected, the apparatus in figure 3 may be used. It consists of a rubber-stoppered bleeding tube in which a  $4\frac{1}{2}$ -in., 14- or 15-gauge hypodermic needle has been inserted in such a manner that the hub of the needle remains inside the bleeding tube while the pointed needle tube protrudes outside the stopper. A  $4\frac{1}{2}$ -in. needle used in this manner provides a 3-in. length of needle protruding outside the tube, which is sufficient to reach into the interior of the heart. The needle is inserted directly into the heart, and no attempt is made to hold the tube lower than the blood source. The normal ventricular or auricular pressure is sufficient to force blood into the tube without the aid of gravity.

Four sheep suffering from other diseased conditions were bled by this method and destroyed immediately after bleeding, for autopsy. No blood was found in the pericardial or pleural cavity and the only lesions found, which could be attributed to the intracardial puncture, were barely visible needle marks on the pericardium of each sheep.

#### SUMMARY

Since August, 1947, all of our blood samples from sheep both for experimental research and for bacteriologic use have been obtained by the method of intracardial puncture as described in this paper. Following the collection of blood samples, these animals have been closely observed, and in no instances have any fatalities or unusual effects been noted. In fact, we believe that the use of this method is to be preferred in pregnant or debilitated animals, as excessive handling of these animals may cause abortion or death. This avoidance of excessive handling has been especially desirable in the case of ewes in our experiment on vibronic abortion, as traumatic abortions may be mistaken for those due to infection, thus leading to the inclusion of

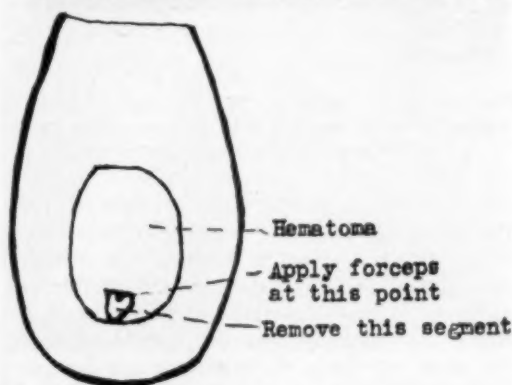
misleading experimental data. It is believed that the intracardial method of bleeding sheep is both convenient and rapid, but, at the same time, greatly reduces the amount of handling and consequent struggling of the animal during the bleeding procedure.

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#### Hematoma Operation

In an old case of hematoma on the inner surface of the ear, a transverse incision,  $\frac{7}{8}$  in. long, was made at the lower margin of the hematoma. The edge of the incision



Inside of Dog's Ear

was grasped with a pair of forceps and a semicircular segment of the inner concha was excised at the edge at the border of the hematoma.

Gentle pressure was exerted to break down dividing walls and to remove all blood clots and serum.

The face of the dog was clipped and covered with a heavy, tenacious emollient until drainage had ceased. The ear healed rapidly, which is usual when a flap of sufficient size is excised.—A. R. Mahan, D.V.M., Box 162, Marysville, California.

# Animal Bone Surgery—Dislocations of the Hip

## (Zoo-osteon-atry)

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THE UNCOMPLICATED dislocation of the hip, *i.e.*, dislocation where there is no injury or damage involving bony structures, such as the neck of the femur or rim of the cotyloid cavity or the pelvis, has always been comparatively simple to correct. Our procedure has been to fluoroscope or x-ray the patient and then administer atropine, morphine, and nembutal to produce a generalized anesthesia. The patient is then placed on a table. A rope, covered with cotton and

in its customary place. After having tried various types of bandages and the injection of sclerosing fluids around the joint, we changed our technique to that of traumatizing the tissue surrounding the articulation. A rubber sponge pad is placed on the table and the dog placed over it. On a large dog we use a heavy rubber mallet, and strike a number of hard blows around the periphery of the articulation. The object is to produce a hyperemia which will cause

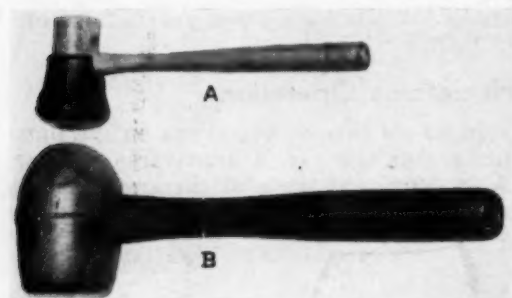


Fig. 1—Heavy rubber mallet (B) used to produce hyperemia in the femur of large dogs; a rawhide mallet (A) used on the smaller breeds.

wrapped with bandage or a piece of rope run through a rubber hose, may serve as a sling which is placed around the affected hind limb. An attendant usually holds the sling or, if working alone, the rope ends are made fast to a cleat on the operating table. As most of these dislocations are forward and upward, traction is exerted downward and backward. It is sometimes necessary to rotate the femur and apply traction for a few moments before the head of the femur slips into the cotyloid cavity.

In the great majority of cases, if the damage is not too extensive and the displacement not of too long standing, the hip will remain in proper position; particularly so if, after replacement, there seems to be a snugness and a tightness around the articulation. In some cases, replacement or displacement is easily accomplished. In these particular cases, we know that the head of the femur will not remain very long



Fig. 2—A piece of silver wire holds the head of the femur to the rim of the pelvis.

the femur to remain in position. In some of the small breeds, we use a rawhide mallet (fig. 1), one end of which is covered with a rubber cap of the type that is used on canes and crutches. This, of course, is not satisfactory for the larger breeds, but is suitable for the smaller and more delicate types of dogs. When this procedure fails and the dislocation persists, it has been our experience that a false union forms with the femur, attaching itself to the upward and forward plane of the pelvis, in an upward and forward dislocation. With these dislocations, we invariably find the affected limb shorter. How

ever, in those few cases where the dislocation is backward and downward, the leg will be longer.

Surgical interference and open reduction in an effort to retain the head of the femur in its proper position has, until recently, been unsatisfactory. Some years ago, we endeavored to wire the head of the femur to the pelvis by drilling a hole through the head of the femur and the rim of the pelvis and then running a piece of silver wire through the holes and twisting them to-

anesthetic as previously described. The hip was rotated (fig. 3) and pulled downward and backward until it entered the acetabulum. We then proceeded in our usual manner to pound around the joint. Several days after the replacement, fluoroscopic examination showed that our work had been of no avail. Discouraged, and having connections in the orthopedic section in one of the leading hospitals of New York City, the physician took the patient there, believing that they might improve upon our tech-



Fig. 3—A difficult type of dislocation to repair.

ether (fig. 2). In the 2 cases so handled, our results were unsatisfactory. We made no attempt to remove the wire, but in both cases a permanent union resulted between the acetabulum and the head of the femur. This discouraged our efforts for some years and if pounding them in, as previously described, was unsuccessful, we proceeded no farther but informed the owner that a false joint would form and the patient would get along reasonably well. We stated that there might be some atrophy of the limb and some impediment in locomotion.

Not long ago, our interest in finding a method of satisfactorily replacing the dislocated hip, which had long posed a problem for us, was revived. A physician brought a beautiful English Setter suffering from what apparently was a dislocated hip. Although he was sure it was a severe strain and not a dislocation, he readily consented to have a radiograph taken of the patient. When the roentgenograms were presented to him, he requested us to attempt replacement. The patient was given a general



Fig. 4—Note position of drill; it is necessary to strike the thick-walled part of the acetabulum.



Fig. 5—Note hole in floor of acetabulum; this thin area will not hold screw.

nique and obtain better results. He was quite optimistic regarding the results for a day or so and then later called up to state that apparently the hip was displaced again and he felt there was nothing else to do. Seeing this beautiful creature on numerous occasions with his crippled leg, we determined to try a new technique at the first opportune time.

#### CASE 1

The patient was about 2 years old, well nourished, and in good condition. Consent was given to operate as we saw fit. The patient was given a mild cathartic the night before the operation and a high enema prior to the operation. The area was closely clipped and thoroughly cleansed with antiseptic soap and water. After drying, the skin was scrubbed well with ether to remove oily debris, then painted with iodine. The 24- and 48-hour skin preparations common

in the past are not so essential with this routine. With an ordinary scalpel, an incision was made disclosing the trochanter major. An assistant placed a finger cot over his forefinger which was placed in the rectum at about the position where we thought the point of the drill would come through. We did not believe it desirable to use a center punch to create a depression in the bone as a starting point for the drill but preferred to use the point of a sharp instrument. The point of the drill (fig. 4) was directed upward and forward in an attempt to come through the head of the femur and carry on through the heavy wall surface of the acetabulum (fig. 5). The assistant kept his finger pressed tightly against the wall of the pelvis and when we thought the drill should be perforating the inner side of the pelvis, we drilled with extreme caution. When the an-



Fig. 6—The round head of the screw can be seen as it emerges from the bone.



Fig. 8—The stitches were removed on the twelfth day.



Fig. 7—The incision (larger than necessary) is closed with a mattress suture. Swelling, present for several days, was not treated and rapidly subsided.

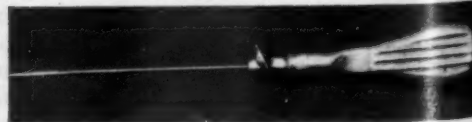


Fig. 9—This instrument makes an excellent feeler for locating bones, needles, or foreign objects in the tissues. A much shorter needle may be used if necessary.

assistant stated that he could feel the end of the drill with his finger in the rectum, we withdrew the drill, being careful not to move the femur out of alignment. We then inserted a round-headed monel metal machine screw  $1\frac{1}{2}$  in. long and  $\frac{3}{8}$  in. in diameter (fig. 6). This was turned in with a slow motion until the attendant stated that he could feel it and that it had come through the pelvic wall. A solution of penicillin was injected around the operated area. The head of the screw was turned snugly so as to fit against the bone. Several stitches were taken in the muscles. The skin incision was closed with a mattress suture (fig. 7). The wound was dusted lightly with a sulfa powder. No further treatment was given. There was a slight rise of temperature for several days, no loss of appetite, but some swelling and considerable pain for a few days over the site of the incision (fig. 8). Remembering our previous experience (when the joint became ankylosed) the decision was made to remove the screw at the end of twelve days. The patient was anesthetized and we proceeded to search for the head of the screw. This was located by means of a needle (fig. 9). It was then removed by means of a sterilized metal screw driver. A little penicillin was injected in the hole and the wound was sutured. The patient was using the leg within about two weeks and went on to an uneventful recovery. There was definitely no lameness, no pain, and no impairment of locomotion four weeks following the operation.

Kodachrome slides and colored movies were

made of the patient. About four months following the operation, the patient was humanely put to sleep. On postmortem examination, there was no osteitis or inflammatory process of any kind apparent. The head of the femur and the acetabulum appeared perfectly normal and the hole made by the drill through the femur and the pelvis had completely filled in.

#### CASE 2

The patient was brought into the hospital with a history of traumatization of the hip of several weeks duration. The dog was x-rayed and the dislocation found to be the usual forward and upward type (fig. 11), the head of the femur riding on the surface of the ilium and firmly attached about 2 in. from the acetabulum. We endeavored from the radiogram to determine the exact length of the screw required as we knew that a short screw would be useless and a long screw would cause trouble at the entrance or the exit. Once the screw was sterilized and inserted in the hole, there would be difficulty in removing it and substituting one of proper length. As the head of the femur was fairly well ankylosed to the plane of the ilium, we went in carefully, avoiding arteries and nerves and gradually loosening the head of the femur from its attachments by means of blunt dissection and small elevators. We had always believed that, if the head of the femur remained out of the acetabulum long enough, the cavity would be filled in; but this

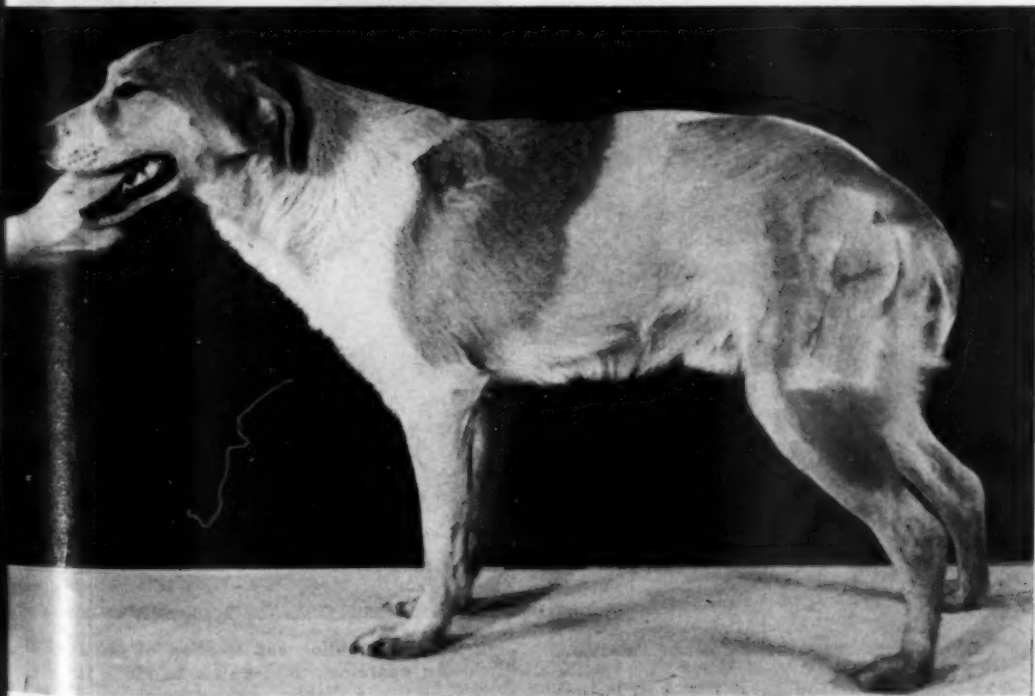


Fig. 10—The patient four months after the operation; the hair has been removed to show old scar.

was not the case and the femur head was gently slid into place. The same procedure was (fig. 12) followed as in case 1. We made a somewhat smaller incision, injected penicillin solution around the area, sutured the muscles with fine catgut, and placed mattress sutures in the skin. The patient developed no temperature, ate all meals, suffered little discomfort, apart from the swelling, except when the limb was touched or handled he winced a little. The screw (fig. 13) was removed at the end of

twelve days (fig. 14). Penicillin was injected into the cavity and within a week the patient was walking normally. Within ten days there was no apparent impediment (fig. 15) in the dog's movements, either walking or running; certainly an improvement over patients with displaced hips that are permitted to form a false joint on the outside of the acetabulum.

#### SUMMARY

1) In 2 cases, hips were retained in place with no infection, ankylosis, or complications. On the surface this report seems excellent, but it will take a number of additional cases to properly evaluate this technique.

2) No operations on live animals should



Fig. 11—The radiograph gives the impression that the head of the femur is almost on the rim of the acetabulum; this distortion is deceiving and is due to the angle from which the x-ray strikes the bone. The distance was approximately 1 in. from the rim; note in fig. 13, the sutured incision and the head of the screw emerging from the bone.



Fig. 13—Note screw head about 1 in. from incision.

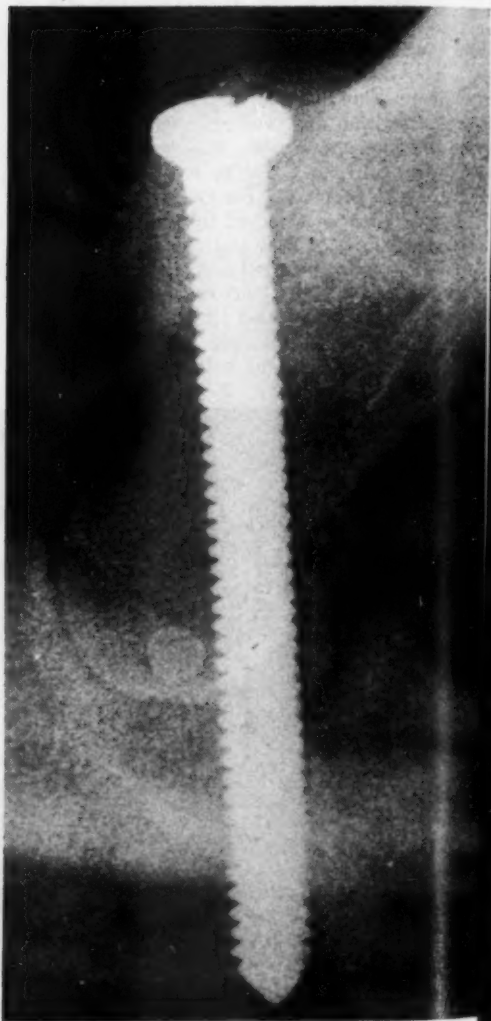


Fig. 12—The position and location of screw directed following operation. It is better to use a screw with a slightly rounded point.

be performed without first working out the technique on dead animals.

3) It is dangerous, because of electrolysis, to use any type of screw except formula SS-18-8-SMO or vitalium. We would not use monel metal screws again as we did in case 1. This screw remained in place for only twelve days. If it had remained longer, results might have been less favorable. There are more than 100 formulas for stainless steel. Only one type, SS18-8-SMO should be used; the other types are to be avoided.

4) Sterile technique is absolutely necessary but the additional infiltration of tissues and operating area with penicillin is essential.

5) In small dogs, the average drill,  $3\frac{1}{2}$  in. long, will suffice but in average or large animals, the drills should be 6 in. long. Carbon steel or high speed drills may be used. The drilling should be done by a hand drill only. An electric drill is not indicated for this type of work. It is too difficult to control and regulate and may do serious damage. A hand drill can be controlled much better and it is possible to feel one's way along and take bearings from time to time.

6) After the drill has passed through the head of the femur, the leg can be adjusted

so that the drill strikes the solid part of the acetabulum. The correct position may be ascertained by bringing the leg forward



Fig. 14—The femur and head show outline of hole made by drill and screw. (Ventral view).

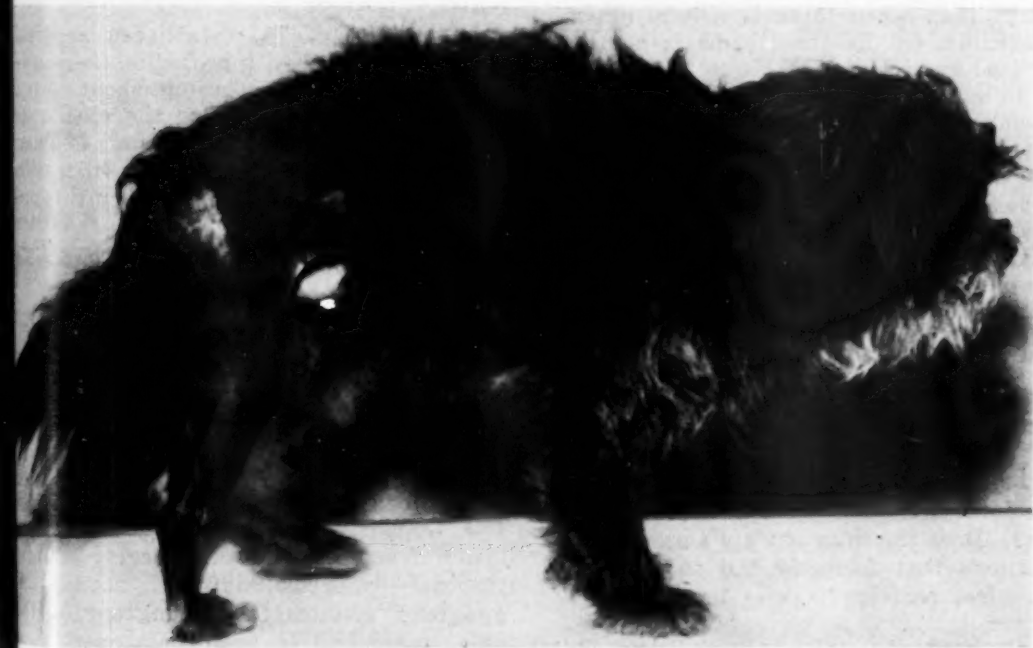


Fig. 15—Case 2, three weeks after operation. The patient is a little stiff but moves leg freely and is in no pain.

or backward (flexing or extending) and bearing down a little (adducting) so as to guide the drill through the solid part of the acetabulum.

### Antibiotic Treatment of Surgical Infections

In establishing techniques for the treatment of infections, primary consideration must be given to whether the infection is surgical or medical. The former type is so termed because it is amenable to surgery. In any surgical infection with localized death of tissues or exudation of leucocytes, there is a central cavity, and in the abscess wall there are thrombosed blood vessels. Bacteria are in the blood clots and may enter the blood stream by spreading back into the clot. Moreover, the blood itself and any medication it may contain has difficulty in penetrating the zone of bacterial activity. Contrast this with a diffuse cellulitis, as represented by a medical infection where the blood vessels are engorged and patent and can carry medication into the area of infection.

Certain drugs, especially the sulfonamides, are inactivated by broken-down tissue and are, therefore, much more effective when the infection is in the cellulitis stage than when there is a local abscess. Penicillin, on the other hand, is not inactivated by broken-down tissue, blood, or pus.

In most medical infections, one organism usually is responsible, but in surgical infections, there is frequently a mixture of organisms, often having a synergistic effect which either hastens the breakdown of tissue or builds up resistance against treatment. Moreover, in chronic infections, such as ulcers, secondary contaminants are constantly being implanted on the wound. In view of this, it is not easy to evaluate the efficiency of drugs in infections for which surgery is indicated. Nevertheless, an attempt has been made to set up a number of criteria, at least one of which any drug should meet before it can be credited with usefulness against a surgical infection.

1) Does the drug obviate surgery in infections that formerly had to be incised to effect recovery?

2) Does it permit less extensive surgery than ordinarily required?

3) Does it cut down the period of wound healing or the duration of infection?

4) When used in conjunction with surgery, does it allow greater success or earlier intervention than when no drug is used?

*Treatment with Penicillin.*—Successful treatment with penicillin depends primarily upon the susceptibility of the organisms involved. Principal drawbacks to its use are resistant organisms and those which are antagonistic (penicillinase-producing). It is important, therefore, that the bacteria present in an infection be identified before treatment is instituted, because after initial treatment, it may not be possible to recover the essential or even some of the secondary organisms. Following bacteriologic identification, each species should be tested for sensitivity to the drug that is to be used. It may prove necessary to meet each species with a specific agent—using a combination of agents to match the bacterial roster of an infection. Physiologic disturbances that occur with surgical infections, particularly with the chronic types, also must be considered. If there has been a serious breakdown of protein and marked loss of blood, restoration of physiologic balance may be a major factor in recovery.

In a series of 744 established surgical infections treated with penicillin, there was a good to excellent response in about 65 per cent of the cases. This led the author to conclude that the stated percentage is about the best that can be expected from this agent in the general run of such infections and that as time passes and more organisms develop penicillin resistance, the percentage may be expected to decline. In the mixed series of 744 cases, the order of response of the various types of infections was as follows: best response—furunculosis, cellulitis, mastoiditis, suppurative arthritis, lung abscess, superficial abscess, brain abscess, and osteomyelitis; intermediate response—deep abscess, thrombophlebitis, sinusitis, infected soft-tissue wounds, infected operative wounds, otitis media, infected compound fractures, and skin ulcers; poorest response—empyema, infected burns, gas gangrene, actinomycosis, gangrene of the skin, postoperative pneumonia, peritoneal abscess, and diffuse peritonitis. Treatment was systemic and/or local; local treatment

Abridgment of an article by Frank Meleney, M.D.: Treatment of Surgical Infections with Antibiotics. Bull. U. S. Army Med. Dept., 8, (June, 1948): 445-451.

alone proved effective in a substantial number of cases.

In cases where penicillin failed, the following factors, singly or in combination, appeared to be responsible: (1) penicillin-destroying organisms, particularly *Escherichia coli*, *Bacillus proteus*, and *B. subtilis*; (2) tuberculosis; (3) tetanus; (4) penicillin-resistant *Staphylococcus* and *Streptococcus*; (5) a combination of susceptible staphylococci and streptococci which may have developed synergistic resistance; (6) patient moribund on admission; (7) using too little of the drug; (8) using it too late; (9) being surgically too conservative; and (10) diabetes.

**Treatment with Bacitracin.**—Bacitracin, which has about the same bacterial range as penicillin, is more effective against non-hemolytic streptococci than penicillin and is active against many penicillin-resistant strains of *Staphylococcus*. Moreover, it is not inactivated by the gram-negative rods that destroy penicillin and it is eliminated more slowly from the body. It may fit into the problem of mixed infections in a way that penicillin may not, particularly in gas-gangrene infections, which nearly always contain gram-negative rods that inactivate penicillin.

**Treatment with Streptomycin.**—Hope was once held forth that streptomycin would fill the gap left by failures of penicillin and the sulfonamides, but it has fallen short of expectations. It is, however, still indicated for urinary infections due to *E. coli*.

**X-Ray Castration of Dogs.**—A study of the action of x-rays on spermatogenesis in dogs revealed that complete sterilization was effected with the dose of 3 H.E.D. (Haut-Einheits-Dosis), due to an irreversible atrophy of the tubular epithelium. Doses of 1 to 8 H.E.D. were used to establish the minimum sterilizing dose.—*Abstr. Rev. Path. Comp.*, (Jan.-Feb., 1948):37.

Glucose, properly administered, serves two postoperative purposes: (1) It prevents starvation ketosis, and (2) it minimizes protein catabolism by exerting a protein-sparing effect.

A high protein diet is helpful to the healing of wounds.

## Esophageal Dilatation

Dr. R. H. Fitts, in his report entitled "Dilatation of the Esophagus in a Cocker Spaniel" (see May, 1948, JOURNAL, p. 343), says: "The literature on the subject is vague." One of our well-informed readers reminds us that the literature is more definite than this statement would imply, and especially so since not a single reference is listed. The following offer definite information on this condition:

Milks, H. J., and Williams, W. L.: Persistence of the Right Instead of the Left Primitive Aorta in the Dog, Incarcerating the Esophagus and Causing the Dilatation. *Cornell Vet.*, 25, (Oct., 1935):365-370.

Lacroix, J. V.: Cardiospasm in Puppy. *North Am. Vet.*, 21, (Nov., 1940): 673-675.

Schnelle, G. B.: Radiology in Canine Practice. 1945. pp. 240-249. Pub. by North Am. Vet., Evanston, Ill.

Bly, H. J.: Ectasia of the Esophagus. *North Am. Vet.*, 27, (July, 1946): 436-438.

## Better Fluoroscopy

The advantage of the fluoroscope over the x-ray photo is the difference between a movie and a still. The diagnostician can watch the movements of the object, such as the action of the heart, the stomach, etc. But, the disadvantage of fluoroscopy is the dim light required to make fluoroscopic image visible to the human eye which, needless to say, functions poorly in somber light. The invention of an intensifier is said to amplify the image 50 times by the complex process of transforming x-rays to light rays to electrons and back to light rays. The invention is credited to Physicist John W. Coltman of the Westinghouse company, who calls the instrument a telescope. Studies of the state of the heart and of early cancerous and tuberculous processes are among its predictable uses.

So-called opening of mares—dilating the cervix with the fingers before the stallion covers the mare—should be condemned. Laymen have been doing it for years and have caused many cases of infection through lack of cleanliness. Moreover, it is of little value because if the cervix is not dilated normally in estrus, it will not remain dilated after it has been "opened," even if the cover is made immediately.—*Dr. B. J. Errington, Calif. Vet.*, May-June, 1948.

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# CLINICAL DATA

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## Clinical Notes

Some of the quaternary ammonium compounds will kill *Salmonella pullorum* on egg shells and on equipment, and at least one of these compounds is capable of killing avian pneumoencephalitis virus when mixed with the virus in 0.1 per cent solution.—*Inst. Am. Poultry Industries*.

Exposure in early life to the parasite of enterohepatitis apparently gives no protection against fatal infection in later life, according to Swales and Frank (*Canad. J. Comp. Med.*, 12, May, 1948). In this respect, the disease is entirely different from coccidiosis in chicks.

*Biliary Calculi in a Horse*.—O. A. Eckell, Buenos Aires, reports a case of multiple biliary calculi in a horse that had been subject to repeated attacks of colic. The autopsy revealed the presence of 71 stones 2 to 4 cm. in diameter, besides countless smaller ones. The total weight of the concretions was 73.5 Gm. The chemical analysis showed considerable biliary pigment.—*Abstr. from Rec. d. Méd. Vét.*, January, 1948.

*Q Fever*.—It is probable that Q fever is not dependent on ticks or insects for its transmission to man, although its relationship to the other rickettsial diseases and the presence of natural infection in many species of ticks suggests that these parasites are involved in its maintenance in nature. In the United States, natural infection has been demonstrated in *Dermacentor andersoni* from Montana and Wyoming, *Amblyomma americanum* from Texas, and *Dermacentor occidentalis* from West Coast states. The incubation period in man varies from thirteen to thirty days, the average being about eighteen days.—*Jellison et al.*, *Calif. Vet.*, May-June, 1948.

*Vioform Prophylaxis for Blackhead in Turkeys*.—Limited studies by DeVolt and Horst, University of Maryland, indicated that the feeding of vioform (1% of the feed) at least forty-eight hours before exposure may have preventive value against artificially induced enterohepatitis (blackhead) in turkey poults.—*Poultry Sci.*, May, 1948.

Always be sure windows and doors are closed before removing a hospitalized cat from its cage, as an escaped cat disregards fences. Heaven and traffic permitting, the cat will return home, but such an incident doesn't help the veterinarian's reputation.—*Dr. E. C. Jones and Miss Jerry Grimm*, *Calif. Vet.*, May-June, 1948.

*Swine Growth Depressed by Thiouracil*.—Addition of 0.25 per cent of thiouracil to the ration of growing Hampshire and Duroc Jersey swine depressed the growth rate considerably after nine to eighteen days on a feeding trial conducted at the Texas A. & M. College (*J. Anim. Sci.*, May, 1948). Weight gains in the control group were nearly double those of animals fed thiouracil for fifty-one days.

*Chemotherapy of Enterohepatitis*.—Limited tests of six different drugs advocated as agents for controlling enterohepatitis in poults led Swales and Frank (*Canad. J. Comp. Med.*, 12, May, 1948) to conclude that none of these agents, by itself, appears capable of altering the course of infection. Sanitary and management practices recommended as adjuncts to drug treatment were not adhered to in these experiments. The drugs were sulfamerazine, sodium sulfamethazine, emetine hydrochloride, atabrine dihydrochloride, a quaternary ammonium compound (formula 144), and an antimony compound (stibophen).

# Sarcoptic Swine Mange Control Tests With Chlordane

W. T. SPENCER, D.V.M.

Omaha, Nebraska

SARCOPTIC mange of swine has been for many years one of the most troublesome conditions confronting swine growers and veterinarians. Because there has been no satisfactory practical treatment, the disease has been harbored year after year on many farms and, through ordinary commercial traffic of feeder and breeding swine, has become widely distributed in all the important hog-producing states. Livestock sanitary officials in Nebraska and Iowa have stated that considerably more than half of the herds in these states are infested. Irritation, caused by the mites burrowing deeply into the skin, results in stunted growth. When animals with advanced infection are slaughtered, the meat is found to be of inferior quality requiring

treated. Five test lots totaling 170 head, all advanced cases, have been treated since Jan. 1, 1948. A 0.25 per cent chlordane solution, made by adding 500 cc. of 74 per cent emulsifiable concentrate to 50 gal. of water, was applied with a power sprayer using from 1 to 2 qt. per head with from 50 to 250 lb. of pressure.

Test-lot hogs were inspected at least once each week for four weeks following treatment. They were found to be relieved of irritation within a few hours following treatment. All hogs showed marked improvement in general condition at the end of one week. In two weeks, the heavy scabs

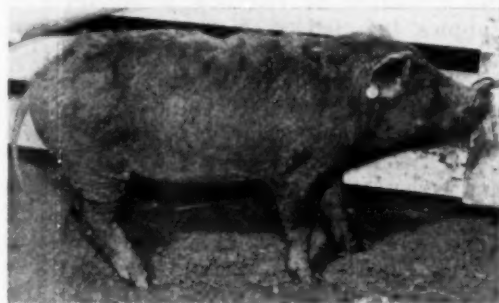


Fig. 1—Advanced case of sarcoptic swine mange, sprayed with 0.25 per cent chlordane solution on Jan. 9, 1948.

special handling and must be sold for less. Specific data are not available on the economic loss resulting from swine mange, but it is admittedly large.

During the past year, I have worked with livestock sanitary officials, entomologists, and veterinarians testing the effectiveness of chlordane\* for the treatment of sarcoptic mange of swine. More than 800 infested hogs, many of them showing extensive and advanced lesions, have been

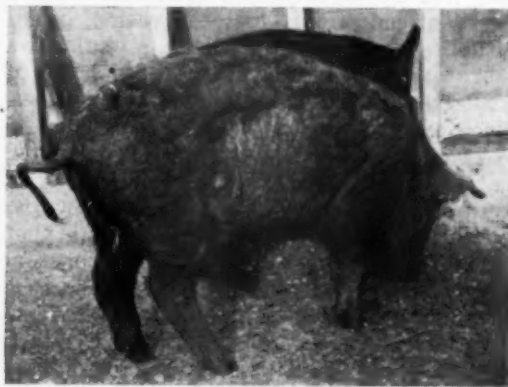


Fig. 2—Same hog on Jan. 30, 1948—twenty-one days after single treatment. Note coat of new hair over entire body.

were loose and scaling off. The skin underneath was found to be pink and pliable and a new coat of hair was developing (fig. 2). Scrapings were taken from some animals in each lot and examined for mites on the seventeenth day and at the completion of the tests. No mites were found. No systemic disturbance or skin irritation due to treatment was noted on any of the animals at any time.

Most of the hogs used in these tests were owned by the Corn States Serum Co., of Omaha, Neb. The management and personnel of the plant cooperated fully.

These tests indicate that one application of a 0.25 per cent chlordane solution, when thoroughly applied, will completely clean up sarcoptic swine mange.

\*Chlordane is a chlorinated hydrocarbon. It is a viscous, amber-colored liquid with a mild cedar odor, slowly volatile, completely soluble in all the usual organic solvents and has many physical and chemical properties which make it well suited for use in the control of ectoparasites in the veterinary field. It is available in veterinary supply houses.

# Proteus Group Organisms Infecting Dogs

JOHN E. CRAIGE, V. M. D.

Seaside, California

IN CONDUCTING a survey of dogs for *Salmonella*,<sup>1</sup> a fairly large percentage were found to harbor organisms of the *Proteus* group. In spite of the fact that most of these dogs had symptoms referable to the intestinal tract, little significance was placed on this finding because of the prevalence of this group in nature. *Proteus mirabilis* was found in making a thorough examination of an Irish Setter with chronic dysentery and in poor condition. When ordinary treatment failed to cure the dog or to reduce the number of *Proteus* organisms, an autogenous bacterin was prepared and administered. Four months later the dog had apparently recovered and was in excellent condition. This observation, in addition to the previous findings, stimulated a more extensive study of the prevalence of *Proteus* in dogs and their relationship to disease.

There is considerable controversy among bacteriologists as to the importance of finding *Proteus* in human feces. Recently, however, there have been some cases<sup>2-5</sup> that strongly suggested a causal relationship, although no report could be found of a conclusive study of the subject. The same may be said of the following report. Until such a study is conducted, the possibility of pathogenesis of the *Proteus* group cannot be overlooked.

## EXPERIMENTAL

The first isolations were made by culturing a rectal swab on SS agar (Difco) plates and in selenite F enrichment broth. Typical colonies were fished and identified by the Sixth Army Area Medical Laboratory at the Presidio of Monterey, Calif. Five cases were tested in this manner with the following results: *P. mirabilis* 2, *P. americanus* 2, *P. hydrophilus* 1. It was not considered practical or necessary to make a complete identification of each subsequent strain. The colonies developing on SS agar plates were subcultured to one spot on a blood agar plate and incubated. The plate was examined in a few hours for swarming and the odor observed. A direct microscopic examination was made for characteristic morphology and motility and a urea splitting test conducted. According to Stuart *et al.*,<sup>6</sup> urease formation in a short time may be considered a good means

of identifying *Proteus*. Under optimum conditions, these tests could be completed in thirty-six to forty-eight hours and proved a very efficient method of identifying *Proteus*. Autogenous bacterins were made from the growth on blood agar by heating a suspension of bacteria in saline solution to 60 to 65 C. for thirty minutes.

## FINDINGS

Records for this study have been kept on 101 cases from which *Proteus* were recovered. The comparative prevalence will be discussed in a subsequent paper. A detailed description of the symptoms and lesions found in these cases would be too long for a report of this kind; however, characteristic symptoms are recognizable depending more or less on the age and condition of the dog when infected. Puppies infected at birth, or during the first few days, died after a brief illness. Autopsy usually revealed peritonitis and omphalitis. *Proteus* organisms were isolated in pure culture in significant numbers from these lesions. The feces and intestinal tract were negative. Puppies which survived this infection, or became infected when a little older, developed an acute diarrhea with blood and mucus. Usually this was associated with fever and septicemia and in most cases terminated fatally in two to seven days. *Proteus* could be recovered from the feces or by rectal swab. After 3 months of age, the disease usually assumed the form of a subacute or chronic dysentery, often with mucus and occasionally with blood. Most cases of this type survived but remained poor and stunted and often had to be destroyed. Those animals surviving a puppyhood infection or becoming infected after maturity showed a variety of symptoms. A careful history would usually disclose that they were subject to loose bowel movements, often after some change in their regimen. Their condition was less than perfect and their coats were not good, especially in the breeds with heavy feathering. In addition, there were sometimes symptoms of central nervous system damage. Blindness without discernible ocular lesions was associ-

ated with 2 cases, fits occurred in 3 cases, and hysteria in 5 others. The basis for incriminating *Proteus* in these nervous disorders will be discussed later.

#### PATHOGENICITY

Due to a lack of facilities, it has not been possible to inoculate dogs with these organisms under controlled laboratory conditions and establish conclusively the pathogenicity and the pathogenesis of *Proteus*

TABLE 1—Dogs Infected with *Proteus*

Age groups	Predominant symptoms					Totals
	Peritonitis Omphalitis	Bloody Dysentery Acute	Chronic Dysentery	Lack of Condition	Nervous Disorders	
Under 2 Weeks...	17	0	0	0	0	17
2 Weeks to 3 Months ..	0	8	16	0	0	24
3 Months to 1 Year ....	0	2	19	2	5	28
Over 1 Year ....	0	1	11	15	5	32
Totals ....	17	11	46	17	10	101

for dogs. However, the clinical study reported herein and the results obtained by the use of autogenous bacterins, and later streptomycin, in the treatment of dogs harboring *Proteus* are suggestive that these organisms are pathogenic.

Eighteen autogenous bacterins were prepared and used on 49 dogs. The injections were made intradermally on the inner surface of the thigh, starting with a small dose and increasing the size of the injection at three-to-five-day intervals until either a reaction occurred (lameness, local swelling, inappetence, chills) or about 0.5 cc. was given. The injections were continued until the animal was cured and rectal cultures negative. It was often found necessary to repeat a series of three to five injections every five or six weeks in the cases of long duration.

Under this treatment, 41 cases eventually cleared up, became consistently negative, and were apparently normal. Four cases died during treatment, 2 failed to become negative and remained in poor condition, and 2 could not be traced. Of the dogs with nervous symptoms referred to above, all with hysteria became normal

after treatment, 2 with fits recovered, and 1 died. One of the blind dogs started to regain his vision after the second injection of bacterin and became apparently normal eventually, while the other dog died during the course of the treatment.

The owners of most of these dogs reported a definite improvement in their animals in many unexpected ways. Their dispositions became better, they were no longer subject to loose bowels upon a slight change in the diet, and the coats and general condition were better. These changes were noted over a period of a few months of treatment and were considered referable to the injections of bacterin by both the owners and the writer.

Karlson and Feldman<sup>7</sup> reported streptomycin was not absorbed in appreciable quantities from the intestinal tract and suggested its use in treating enteritis in animals. Since *Proteus* were known to be inhibited by this antibiotic agent,<sup>8</sup> streptomycin was used in the treatment of *Proteus* infections as soon as it became available. It was given orally in doses of 50 to 500 mg. once daily for three or four days. In very acute cases or cases showing septicemia, 100 to 250 mg. were also given intramuscularly or intraperitoneally every three to eight hours for as long as required.<sup>9</sup>

The results were astounding. The diarrhea ceased after the first dose and the bowels became normal on the next passage in most cases of acute infections. Chronic infection showed marked improvement but usually the symptoms recurred. In treating some of these cases, it has been found advisable to combine streptomycin and autogenous bacterins to attain lasting results. Puppies practically moribund with peritonitis have been saved by intraperitoneal injections of streptomycin at intervals of three hours.

#### SUMMARY

- 1) *Proteus* organisms have been isolated from 101 dogs.
- 2) The dogs showed a variety of symptoms including peritonitis and omphalitis in newborn puppies, acute bloody diarrhea, chronic dysentery, and nervous disorders.
- 3) Eighteen autogenous bacterins were prepared and used in 49 cases. Results were generally good.
- 4) Streptomycin administered orally ap-

pears to be specific for the acute dysenteries associated with *Proteus* infections.

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- <sup>9</sup>Craige, John E.: Streptomycin in the Treatment of Dysentery in Dogs. The California Veterinarian, 1, (March-Apr., 1948): 22.

### Milk-Borne Infections

Investigational work carried out by Holmes of New York State Veterinary College (*Milk Dealer*, Nov., 1947) revealed the percentage of cows infected with pathogenic microorganisms. The survey involved 9,000 cows in 300 herds. The incidence of mastitis was 35 per cent of which 25 per cent were streptococcal, and the rest staphylococcal, coliform, and corynebacterial, with the occasional presence of *Pseudomonas*. Some of the herds were mastitis-free and others showed as many as 90 per cent of the cows shedding mastitis organisms with their milk. Correct diagnosis, prevention of infection and predisposing factors, and judicious therapy was the line of treatment recommended.

### Polyvalent Helminthagogue

In an article discussing the treatment of gastrointestinal parasitosis in farm horses and colts, Clech (*Rec. Méd. Vét.*, Apr., 1948) stresses the ravages of worm and larval parasites. Colts suffer from fatal septicemic colibacillosis and worm-laden dams may not provide sufficient milk.

In any event, neither thrives too well even though they may escape acute clinical upsets.

The worm-parasite infections of the farm horse are multiple and, therefore, require polyvalent treatment that would be too expensive if based on strictly scientific diagnoses and specific medication for each phase of worm-parasite life. The economics of the situation on the farm calls for a one-visit, one-dose helminthagogue that will eliminate enough visible vermin to give a durable result and a favorable rating.

Reserving subsidiary medication and hygiene for the badly stricken subject, the following formula will cover more ground than any other one-dose mixture:

Carbon disulfide	25 cc.
Oil of turpentine	60 cc.
Chloroform	30 cc.
Castor oil	300 cc.

The mixture is given in one dose with the stomach tube after an all-night fasting. Colts of 2 to 6 months are given half that amount.

The following day, bot larvae and ascarids begin to roll out. The diffusible character of turpentine in the circulating blood inhibits the migrant larvae of *Ascaris* in the lungs, and the vermicide action of chloroform was found to be remarkable. The castor oil completes the dynamics of the mixture by its cathartic action.

Strongyles? The one case reported responded to the mixture after having failed to respond to phenothiazine.

### Chloromycetin (=Aerosporin)

The latest antibiotic to take its place alongside of penicillin and streptomycin is chloromycetin, which is reported to be several hundred times more active against whooping cough and typhus fever than streptomycin and less inclined to develop germ resistance. It is fascinating to know that the bacterium from which it is made is a rare germ, first isolated in a Chicago water faucet in 1928 and again in the soil of a garden in England, where its powerful germicidal properties were discovered. The new agent will probably be named aerosporin for the germ that produces it. Trials have shown that pertussis, an infection lasting for weeks, yields to the new agent in forty-eight hours.

### Sulfamethazine and Sodium Sulfamethazine in Fowl Cholera

Controlled experiments with sulfamethazine and sodium sulfamethazine in the treatment of fowl cholera, carried out by Kiser, Frier, and Bogtoref (*Poultry Sci.* May, 1948), gave outstanding results in both experimentally and naturally infected birds. Either of these drugs reduced the mortality 65 to 83 per cent in artificially infected groups and 45 to 75 per cent in the naturally infected ones. The drug was given at the rate of 0.5 to 1.0 per cent in the feed or 1.0 per cent in the drinking water. The naturally infected group consisted of 17,600 birds.

### Suramin in the Treatment of Brucellosis

Suramin, one of the symmetrical urea derivatives, is credited with promoting recovery in a series of eight cases of human brucellosis, due to *Brucella abortus*, treated by Morris in Southern Rhodesia (*Brit. Med. J.*, May 8, 1948). Two weekly intravenous injections were given, each consisting of 1 Gm. of suramin in 10 cc. of sterile distilled water. If marked improvement did not follow within three days to a week after the second injection, a third intravenous dose of 2 Gm. was given. The treatment apparently had no undesirable effects.

### Atypical Canine Distemper in Europe

For several years, veterinarians of Great Britain and France have been confused over the irregular results obtained from canine distemper vaccination and from chemotherapeutic agents ordinarily employed in its treatment. The cause of the irregularity and "breaks" following vaccination have been attributed by various investigators to (1) a suspected plurality of the virus; (2) to a distemper-like infection not related to Carré's virus or to atypical forms thereof; and (3) to hyper-virulence of the virus due to the depressing effect of the low, wartime and postwar rations fed to the dogs of food-rationed countries.

A clinical feature reported is the preponderance of neurotropic cases manifesting encephalitis so markedly from the very beginning, instead of later in the course of the illness, that some critical investiga-

tors suspected that they were dealing with a new virus infection of the central nervous system.

Another type described had a longer course than usual, developing encephalitis and/or chorea at different stages of the illness. The situation has been further complicated by observations that the ferret virus of Green does not react the same on the ferrets and dogs of France as it does reportedly on those of the United States, the sensitivity appearing to be different in the two countries. Quoting Goret (*Rev. Méd. Vét.*, April, 1948): "It is permissible to believe that the use of ferret virus in the preparation of vaccine in France during more than ten years has aided in the diffusion (in nature) of a virus having a peculiar pathogenic power."

### Rickettsialpox

A newly identified rickettsia, designated as rickettsialpox because of its clinical resemblance to chickenpox, adds a new name to the list of human diseases. It was recognized as a special identity by the New York City Health Department and the U.S. Public Health Service in the study of 144 cases among the congested population of the Bronx. Suspicion points to mice as the transmitting agents. Its microbial cause was checked against typhus, leptospirosis, Q fever, Rocky Mountain spotted fever, tsutsugamushi, fièvre boutonneuse, tularemia, and other febrile states for which it might be mistaken clinically. *Rickettsia akari* has been suggested as the name of the specific organism isolated.—*Abstr.*, Editorial, *J. Am. M. A.*, May 22, 1948.

**Cattle Grubs in Horses.**—Cattle-grub infestation of horses is probably accidental, according to Major B. F. Trum, V.C. (*Blood-Horse*, Jan. 3, 1948), but it is nevertheless a potential nuisance. Accidental or otherwise, when the heel fly (*Hypoderma lineatum* or *H. bovis*) deposits its eggs on a horse, the outcome is painful and the horse cannot be ridden. Removal of the grubs can be accomplished best by dilating the holes and applying a suction cup. The author stated that he had observed cases of grub parasitism in horses in New England, several of the southern states, and Nebraska.

# Anaphylactic Granuloma in a Stallion

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*College Station, Texas*

EXPERIMENTAL work on granuloma in focal anaphylactic inflammation has recently been reported by Goddard.\* Egg albumin was used in most of his work and all his experiments were done on guinea pigs. In small microscopic fields, however, the lesion reported in this article appears identical with that seen in the guinea pig.

In December, 1942, a 6-month-old Quarter Horse colt was given the first of two

tions of 1,500 units of tetanus antitoxin was given. At the site of the injection a hard, raised plaque 6 in. in diameter and  $\frac{1}{2}$  in. thick developed. This swelling disappeared in about a week. Three weeks after the antitoxin injection several small, round, hard swellings were noticed on the animal's back; three were on the left side of the withers at the posterior border of the scapula; one was on the right side about 3 in.

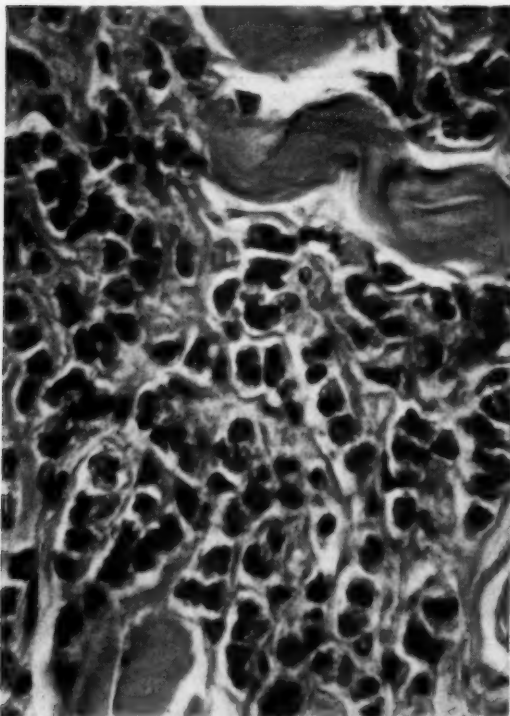


Fig. 1—Infiltration of eosinophils in the dermis. x 430.



Fig. 2—Note the area of heavy cellular infiltration at the top of the field. x 100.

doses of tetanus toxoid; thirty days later he was given the second injection. In October, 1947, almost five years later, this stallion got a black locust thorn stuck in the frog of a foot. At that time, an injec-

tion of tetanus antitoxin was given. At the site of the injection a hard, raised plaque 6 in. in diameter and  $\frac{1}{2}$  in. thick developed. This swelling disappeared in about a week. Three weeks after the antitoxin injection several small, round, hard swellings were noticed on the animal's back; three were on the left side of the withers at the posterior border of the scapula; one was on the right side about 3 in. from the dorsal median line and one was in the pectoral region. These swellings became larger, remained in the skin, sent out branches in radiating fashion, and did not exude; the hair remained tight. At the end of the fourth week, the swelling in the pectoral region was about the size of a half-dollar and irregular in outline. This lesion was removed surgically and sectioned.

Another injection of tetanus antitoxin

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\*Goddard, J. W.: Granuloma in Focal Anaphylactic Inflammation. *Am. J. Path.*, 23, (Nov., 1947): 943-965.



Fig. 3—Area containing calcification. x 430.

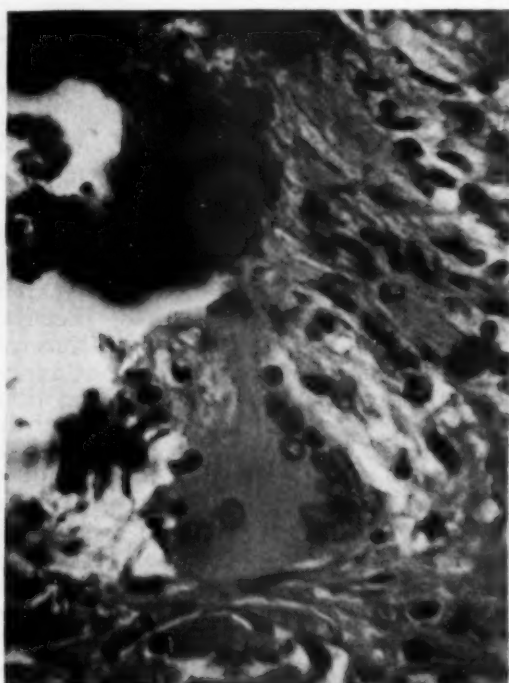


Fig. 4—Note giant cell in lower half of field. x 430.

was given at that time. In four days, three oblong plaques about 1 by 2 in. had formed on the left side of the neck at the junction of the mane and hair; these plaques divided longitudinally in about a week and in January, 1948, they were almost indiscernible. The original ones, however, still remained; they had decreased slightly in size, were confined to the dermis, and were harder. The temperature and appetite remained normal throughout the period of reaction.

Microscopic examination of the skin lesion showed a marked infiltration of eosinophils (fig. 1) in the dermis. Lymphocytes, plasma cells, and histiocytes were also present in fewer numbers. The region of heavy cellular infiltration was clearly demarcated from the normal dermis but encapsulation was not present. Many irregularly, non-encapsulated areas, measuring up to 300  $\mu$  in diameter, were found at various places throughout the infiltrated region (fig. 2). Some of these areas contained calcified material (fig. 3), while others showed cells undergoing coagulation necrosis. Some of the areas were composed of denser collections of the infiltrating cells. In those areas containing calcium, giant cells were occasionally found (fig. 4).

The epidermis and accessory skin structures did not appear to be involved in the lesion.

#### Milk Fever: Prepartum Milking Not Preventive

Although the clinic has long discarded the theory that prepartum milking prevents milk fever, unrefutable proof to that effect has remained unrecorded in veterinary literature. Worthy of recording, therefore, is the demonstration made at the Biltmore Farms, North Carolina, by Smith and Blosser\* of the University of Wisconsin, proving that milking before parturition does not modify the milk fever incidence. In the Biltmore herd of 600 milking cows where the milk fever morbidity for the previous four years was 19.3 per cent of the total herd, that of 46 cows milked experimentally for two to sixteen days before calving, was 19.6 per cent, or slightly higher than the four-year average.

\*Smith, Vearl R., and Blosser, T. H.; Parturient Paresis. I. The Incidence of Parturient Paresis and Changes in the Total Blood Serum Calcium at Parturition in Prepartum Milked Cows. *J. Dal. Sci.*, 36, (Nov., 1947): 861-866.

# Treatment of Streptococcus Agalactiae Mastitis with Bacitracin and Penicillin

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BACITRACIN<sup>1</sup> is a relatively new antibiotic drug produced by a member of the *Bacillus subtilis* group. It has been found to inhibit growth of the gram-positive bacteria. Frank L. Meleney and Balbina Johnson,<sup>2</sup> reporting on their first 100 cases of surgical infections treated with bacitracin, state they have secured favorable results. In the *in vitro* tests of the organisms isolated from these infections, they report that 30 were resistant to penicillin and susceptible to bacitracin and that 6 were resistant to bacitracin and susceptible to penicillin. The remaining 64 organisms were susceptible to both penicillin and bacitracin. Bacitracin has previously been shown by the author to have some promise in the treatment of *Streptococcus agalactiae* mastitis,<sup>3</sup> which warranted this further study. The purposes of this study were to further observe the results of the use of this drug on this type of mastitis and to make some comparison between it and penicillin. Penicillin was selected because it is receiving more attention at present than any other drug for the treatment of bovine mastitis.

The cows are kept in the barn for about two hours each morning and evening for feeding and milking. The milking is done by machines with the cows standing in their stanchions. There was no interruption of milking procedure or time of milking during the experiment. Good sanitary milking practices are used with this herd.

## DETERMINATION OF INFECTION

Diagnosis of *Str. agalactiae* mastitis was made by 24- and 48-hour incubation of Hotis tubes and the microscopic examination of incubated samples stained with Newman's stain. In addition, all quarters were palpated to determine the extent of induration, atrophy, or hypertrophy.

A quarter was considered to have *Str. agalactiae* mastitis if yellow flakes appeared on the sides or bottom of the Hotis tube and if streptococci were found on microscopic examination of incubated samples.

## PROCEDURE

The entire milking herd was tested in the above-mentioned manner for *Str. ag-*

TABLE I—*Streptococcus Agalactiae* Infected Quarters Treated with Bacitracin and Penicillin

Bacitracin given given every 24 hours for 3 treatments	Cows (No.)	Quarters treated (No.)	Quarters freed of infection	Quarters later treated with penicillin	Quarters freed of infection with penicillin
20,000 units	4	10	6	4	4
50,000 units	4	10	6	4	1
100,000 units	6	10	9	1	1

## MATERIALS AND METHODS

The cows used in this experiment were from the regular milking herd of the Agricultural Experiment Station. This herd is made up of purebred Jersey, Holstein-Friesian, Ayrshire, and Guernsey cows in about equal numbers.

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The work was carried out with the support of the Research Foundation of Oklahoma A. & M. College in cooperation with the Dairy Department of the Oklahoma Agricultural Experiment Station, which furnished the herd and assistants to care for the cows and determine the effects of the treatment on milk production. The bacitracin used was generously furnished by Ben Venue Laboratories, Inc., Bedford, Ohio.

*lactiae* mastitis. From the infected animals 14 were selected which were expected to remain in the milking line for three months or longer. These represented 30 mildly- to severely-infected quarters. Two quarters showed no induration on palpation. Five quarters showed slight induration; two quarters showed distinct induration; and 21 quarters showed marked induration. These cows were producing quantities of milk ranging from 43 to 14 lb. per day.

The bacitracin was dissolved at the rate of 2,000 units per cc. in distilled water and then filtered through a Seitz filter.

Only a day's supply was made up at a time. It was used at the above concentration or diluted with distilled water so that 50 cc. represented 100,000 units, 50,000 units, or 20,000 units, which were the dosages used. In general, this drug is handled and administered in a manner similar to penicillin.

The bacitracin was infused into the completely milked-out udders following the 3:00 p.m. milking on three consecutive days. Three weeks and four weeks after the last treatment, samples were taken and checked for *Str. agalactiae* as explained above. Quarters which were negative to both tests were considered to be freed of infection. Quarters which remained positive were given three treatments at 24-hour intervals of 100,000 units of penicillin dissolved in 50 cc. distilled water. Three weeks after treatment with penicillin, and again a week later, samples were checked for *Str. agalactiae*.

The results of treatment with both bacitracin and penicillin are shown in table 1.

#### DISCUSSION

In the author's previous experiment,<sup>3</sup> 28 quarters were treated with dosages of bacitracin ranging from 2,000 units to 20,000 units and 14.3 per cent were freed of infection. The dosages of bacitracin used in this experiment freed 70.0 per cent of the quarters of infection. This would indicate that bacitracin may have better therapeutic value for *Str. agalactiae* mastitis when sufficient trials have been made to indicate what dosage should be used.

Of the nine quarters which failed to respond to bacitracin, seven showed marked induration and two slight induration. This indicates that indurated quarters are more refractory to treatment with bacitracin than nonindurated quarters. This is in agreement with our experience with other drugs.

The author does not feel that the data available from this experiment furnish an adequate basis for a true comparison of the relative value of bacitracin and penicillin. It would appear that dosages of 100,000 units of penicillin are more effective than dosages of 20,000 and 50,000 units of bacitracin, but no more effective than 100,000 units of bacitracin. This experiment does not include any trials using penicillin on a group of infected quarters and

treating the refractory cases with bacitracin, which might show some infections refractory to penicillin but not to bacitracin. More extensive trials with bacitracin are needed before a final evaluation can be made.

Bacitracin appeared to be nonirritating to the udder and caused no change in the quantity of milk given or its physical quality. Milk taken twelve hours following treatment contained no noticeable off-flavor or odor which would have prevented its being marketed.

#### SUMMARY

Bacitracin in dosages of 20,000 to 100,000 units per quarter shows definite promise as a therapeutic agent for the treatment of *Streptococcus agalactiae* mastitis. Bacitracin was apparently nontoxic and nonirritating in the dosages used.

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- <sup>3</sup>Benson, D. V.: Treatment of Bovine Mastitis with Tyrothricin, Bacitracin, Streptomycin, and Penicillin. *J.A.V.M.A.*, 111, (1947): 289-294.

#### A New Old Book

"The Horse," by William Youatt (London, 1831), is the first scientific book on veterinary medicine published in the English language. It contains a brief history of the modern Thoroughbred and the light harness horse, together with the records of famous American trotters of the 1830's. Youatt's work is a true picture of veterinary medicine preceding any knowledge of pathogenic bacteriology and is honored as an old tome because it is not marred with speculative pathology. It was forty-five years after Youatt that a specific microbe—anthrax bacillus by Robert Koch, 1876—was discovered and proved.

The copy has recently been presented to the AVMA library by Dr. C. O. Kackley, Marietta, Ohio.

Splashing an iron salts solution on the floors of buildings where baby pigs are raised is reported to be a simple and usually effective means of preventing nutritional anemia.

### Milk Fever in Ewes

Milk fever in ewes is common in Norway. It occurs in well-fed ewes mostly about two weeks before lambing. The pulse is weak and slow, temperature normal or below, appetite diminished. The staggering gait, mournful countenance, and excitation are followed by inability to stand. Coma characterizes the later course of the attack. The duration is twenty-four to forty-eight hours. The autopsy reveals more or less bloat and pulmonary edema. The mortality of the untreated cases is high but may be reduced to only 5 to 6 per cent if animals are treated intravenously with 25 to 40 cc. of calcium gluconate and additional amounts subcutaneously to make a total of 100 cc.—*L. Bloch Walhne: La Fièvre Vitulaire de la Brebis. Norsk Vet.-tidsskr., 58, 1946. Abstr. in Rec. d. Méd. Vét. January, 1948.*

### Penicillin in Calfhood Diseases

For some time the Allahabad Agricultural Institute has been troubled with a high mortality of young calves. The records for 1946-1947 show a rate of approximately 35 per cent from all causes. Since my arrival a year ago, there have been a few cases of pasteurellosis, but 90 per cent of the deaths have been caused by an intestinal disease of a different nature.

Carabaos (water buffaloes), as well as calves, are susceptible. The disease affects animals from 1 week to 2 months of age, and is prevalent throughout the year. The prominent symptoms are depression and an elevation of temperature to 103 or 105 F. The second day after the rise in temperature, the stool becomes soft and occasionally a typical diarrhea occurs; in all cases the stool is straw-colored. There is no characteristic odor. The animal spends much of the time in a recumbent position, and death occurs within a week.

The necropsy findings are constant. There is hemorrhagic enteritis affecting the small intestine and the small colon. Many times the mucous surfaces appeared as though they had been painted, showing bright red, well-defined, circumscribed areas. The mesenteric lymph glands are always swollen and pale in calves; the spleen is usually swollen. In Carabao, the spleen is markedly swollen, with echymotic hemorrhages be-

neath the capsule. No indication of pneumonia was found, and all other organs appeared normal.

As there are no facilities at the Institute for isolation and examination of bacteria, nothing was attempted in the way of isolation of the causative agent.

Blood transfusions from older cows were tried both as a preventive and as a cure, but with no success. Sulfanilamide was of no value. The mortality for affected calves remained 100 per cent. The pens are kept clean; however, because of the large numbers of calves born every year, as many as 4 and 5 must be penned together. This results in the calves sucking each other's ears and navels. I have been unable to provide individual pens for each calf, but that is what I strongly recommend.

As the symptoms and necropsy findings correspond rather closely with Dr. Udall's description of paratyphoid in calves,\* I made a tentative diagnosis of paratyphoid of *Salmonella* origin.

However, a visiting veterinarian, Dr. Singh from Orissa, told me that he had had good results from penicillin in calves with a stool the same color as that of the ones I had treated. Since then, I have given penicillin to 10 animals, showing the symptoms mentioned. There has been 100 per cent recovery. The dosage used was 300,000 units divided into four equal doses, and given subcutaneously six hours apart.

Because penicillin seems to be specific for this disease, but is not known to be bactericidal for gram-negative organisms, I hesitate to say that the disease is of *Salmonella* origin. Knowledge of the true nature of the causative agent of this calfhood disease will await bacteriological studies.—*Arlan W. McClurkin, D.V.M., Allahabad, India.*

\*Udall, D. H.: *The Practice of Veterinary Medicine*. 3rd Ed. (1939): 405-406.

The average incidence of trichinosis infection in United States hogs has been estimated at about 1.5 per cent.

A definite degree of tuberculocidal action appears to have been established for streptomycin.

A calf may develop rickets on an exclusive milk diet.

## Viability of *Vibrio Fetus* in Hay, Soil, and Manure

According to Lee and Scrivner,<sup>1</sup> vibronic abortion is transmitted to noninfected ewes in from ten to twenty-one days or longer. Merchant<sup>2</sup> reports that the responsible organism, *Vibrio fetus*, is eliminated from the infected animal before and after abortion, thereby contaminating grass pastures

TABLE I

Time	Hay			Soil			Manure		
	37 C.	20 C.	6 C.	37 C.	20 C.	6 C.	37 C.	20 C.	6 C.
10 days	+	+	+	+	+	+	+	+	+
20 days	—	—	+	—	—	+	—	—	+
30 days	—	—	—	—	—	—	—	—	—

and other feeds and transmitting the organism to susceptible animals. However, workers in this laboratory, feeling that the epizootiological considerations have been neglected, have undertaken to evaluate the indirect route of transmission. As a first step, research upon the *in vitro* reactions of *V. fetus* has been undertaken and has been partially completed. The results thus far obtained are here presented.

A mixture of three strains of *V. fetus* (HI, Ward, Wyo.; 2755, Marsh, Montana; and Cambridge, Ovine IV) was prepared by suspending in physiologic saline the growths obtained upon blood agar plates. The saline suspension thus obtained contained approximately 1.5 billion organisms per cubic centimeter. Viability of these organisms in suspension was satisfactorily demonstrated by the streaking of blood agar plates. Purity was checked by simple staining and microscopic examination. Nine flasks were also prepared: three each of soil, alfalfa hay, and sheep manure. None of these were sterilized. To each flask was added, in such a manner as to assure maximum distribution, 1 cc. of the aforementioned saline suspension. One each of the inoculated hay, soil, and manure flasks was incubated at 37 C., one each at room tem-

perature (20 C.), and one each under refrigeration (6 C.). At intervals of ten days, samples were removed from each flask and attempts made to re-isolate the inoculated organisms. For results see table 1.

The results obtained would tend to bear out the report of Lee and Scrivner. The increased periods of viability at refrigeration temperatures are of especial interest, since most cases of vibronic abortion in Wyoming occur during the colder months. The epizootiological significance of these figures, while small, would seem to support the statement of Merchant. Experiments are now in progress under natural conditions, and it is hoped that conclusive results can be obtained.—R. W. Lindenstruth, D.V.M., and B. Q. Ward, B.A., M.A., Laramie, Wyoming.

## Antihistamine Treatment of Founder

Soluble antihistamines have revolutionized the treatment of founder, declares Kochan, of England (*Vet. Rec.*, 60, May 29, 1948), in citing cases to support his conclusion. Three acute cases—pony, bull, gilt—so badly affected they could not stand, were treated with intravenous anthisan, a new British product (proprietary) described as "5 per cent pyranisamine maleate." Injections were given once a day for two or three days. The pony and bull each received two injections of 20 cc.; the gilt, three of 10 cc. All were able to walk without difficulty twenty-four hours after the last injection, and all recovered.

## The Varied Potency of Rabies Vaccine

The Habel mouse test for the potency titration of rabies vaccine, adopted by the National Institute of Health and the U. S. Bureau of Animal Industry, is capable of giving variable results as performed by different commercial laboratories, according to Habel and Wright (*Pub. Health Rept.*, Jan. 9, 1948). The test is influenced by certain factors involving the strain of the virus, the strain of the mice, and the work of the technician. Laboratories experiencing difficulties in obtaining satisfactory uniformity are here advised to examine these three factors or, better still, to study the details of the work conducted by these authors in making their calculations. The reliability of the source is the main factor for the clinician to consider.

This paper is presented with the approval of the director of the Wyoming Experiment Station. Results obtained represent a partial solution of an experimental project of that institution.

<sup>1</sup>Lee, A. M., and Scrivner, L. H.: Experimental work upon Recent Outbreaks of Abortion in Ewes. *Am. J. Vet. Res.*, 2, (1941): 50-54.

<sup>2</sup>Merchant, I. A.: *Veterinary Bacteriology*. 3rd ed. Iowa State College Press, Ames, 1946.

## Crotalaria Poisoning in Cattle

Numerous workers of the Florida Agricultural Experiment Station,<sup>1, 2</sup> as well as Piercy and Rusoff,<sup>3</sup> have described *Crotalaria spectabilis* Roth poisoning in cattle. Two distinct types of poisoning have been described: acute and chronic.

**Acute Crotalariosis.**—Animals with the acute type of poisoning usually develop symptoms within twenty-four hours after eating the plant, and death occurs within ninety-six hours. The characteristic lesions are profuse and extensive, ecchymotic hemorrhages occurring on the serous membranes of the peritoneal and pleural cavities. The acute type of poisoning has occurred occasionally in the field under Florida conditions.

**Chronic Crotalariosis.**—The great majority of the field cases of crotalaria poisoning in cattle has been of the chronic type. In such cases, animals have been known to die six months after last access to the plant with a terminal illness, apparent to the layman, of about ten to fourteen days. The coat becomes rough and lusterless usually before other symptoms appear, and the animal is nervous and often excitable. The abdomen appears full. The stool usually contains some blood about three or four days before the animal becomes prostrate, after which death occurs within forty-eight hours. The outstanding lesions are ascitic. There is marked edema of the mesenteric tissues with occasional patches of blister-like petechia on the serosa of the intestines and a bluish gray indurated liver.

**Tolerance for Crotalaria.**—During the past two years, a third type of poisoning has been observed frequently among cattle, particularly during the past winter. The first symptom noted is weakness and a staggering gait. The coat is dull, breathing is fast and rather shallow, the stool may consist of hard pellets or be almost diarrheic, the abdomen is gaunt and markedly "tucked up" in the flanks, and the pulse may be accelerated somewhat and strong or slow and weak. Moderate forced exercise results in much faster breathing and marked visible weakness. The animal may live for several months showing inappetence and slow progressive weakness and emaciation. The characteristic lesions of these cases are: atrophic cirrhosis of the liver, 3 or 4 qt. of fluid in the peritoneal cavity,

and occasional patches of blister-like petechia on the serosa of the intestines.

Most of the animals showing the latter type of poisoning had a history of having had access to crotalaria not more than two months previously. Cattle affected with this type of poisoning often live for two or three months after symptoms become apparent. This, no doubt, is attributable to atrophic cirrhosis of the liver, which is similar to that observed in the chronic type of crotalaria poisoning in swine.<sup>4, 5</sup>

There is a strong possibility that this may be a subchronic type of poisoning. There also is the possibility that these animals may have acquired some tolerance to the toxic alkaloid of the plant. There is little doubt in the mind of the author that many animals acquire such a tolerance by eating small amounts of the plant over a period of time. On the other hand, the only pre-requisite to deaths from crotalaria poisoning is for the animal to eat a sufficient quantity of the plant. The green, frosted, wilted, or dried plant, as well as the seed, are potentially destructive to all classes of livestock.

Observations made during the past winter show that a number of farmers experienced losses from crotalaria poisoning in cattle for the first time in the sixteen years their cattle had had access to it. It is not known why animals will eat it on certain occasions and not on others. However, it is believed that there is less likelihood of well-fed animals eating sufficient of the plant to produce poisoning than ill-fed ones.—M. W. Emmel, M.S., D.V.M., Florida Agricultural Experiment Station, Gainesville.

## References

- <sup>1</sup>Sanders, D. A., Shealy, A. L., and Emmel, M. W.: The Pathology of *Crotalaria Spectabilis* Roth Poisoning in Cattle. J.A.V.M.A., 89, (1936): 159-164.
- <sup>2</sup>Ritchey, G. E., McKee, R. Becker, R. B., Neal, W. M., and Arnold, P. T. D.: *Crotalaria* for Forage. Florida Agri. Exptl. Sta. Bull. 361, (1941).
- <sup>3</sup>Piercy, P. L., and Rusoff, L. L.: *Crotalaria Spectabilis* Poisoning in Louisiana Livestock. J.A.V.M.A. 108, (1946): 69-73.
- <sup>4</sup>Emmel, M. W., Sanders, D. A., and Henley, W. W.: *Crotalaria Spectabilis* Roth Seed Poisoning in Swine. J.A.V.M.A., 86, (1935): 43-55.
- <sup>5</sup>*Ibid.*: Additional Observations on the Toxicity of *Crotalaria Spectabilis* Roth for Swine. J.A.V.M.A. 87, (1935): 175-176.

A 1 per cent solution of sodium chloride rapidly and completely disintegrates ear wax *in vitro*.—*Laryngoscope*, Oct., 1941 (cited in *Med. Times*).

### Goat Dermatitis, New Virus Disease in India

An acute, contagious, and highly fatal disease, initially considered an atypical form of goatpox, is now known to be a separate entity, tentatively named goat dermatitis. It is caused by a filterable virus that is present in the blood and skin lesions throughout the course of infection. The incubation period is about seven to ten days.

Symptoms are general malaise, elevated temperature (104 to 106 F.), rough coat, and nonpustular, rubbery nodules, 4 to 12 mm. in diameter and 1 to 2 mm. high, over the body surface and in the mouth. These lesions also are found in the lungs and kidneys. Pneumonia, invariably fatal, develops in the majority of cases, usually within a day or two after symptoms appear. The authors (Haddow and Idnani) state that if the animal survives, which is rare, the tissue of the nodule becomes necrotic and is shed, leaving a shallow, red-floored ulcer which gradually forms a hard, tenacious scab. Healing is slow, with the scab remaining for at least three weeks.—*Indian Vet. J.*, 24, (March, 1948): 332-337.

### Differential Diagnosis of Canine Leptospirosis

In early, acute cases and in mild cases of canine leptospirosis, it is nearly impossible to distinguish the symptoms from those of distemper. However, the absence of respiratory symptoms and usually of diarrhea, the presence of pain over the kidneys, muscular stiffness, and subsequent fall of the temperature to normal or subnormal will help to establish a diagnosis of leptospirosis.

An established acute or subacute case has many symptoms in common with obstruction of the small intestine, which, like leptospirosis, causes a rise in the blood nonprotein nitrogen. Radiographs were taken of two subacute cases with a differential diagnosis of this type in view. Large accumulations of gas in the small intestine were noted in both cases. Abnormal appearances on radiographs of suspected leptospirosis cases also have been noted. In one instance, the abnormality was so marked that a laparotomy was performed, on the assumption that a nonopaque foreign body

or some other obstruction would be found. Palpation of the abdomen, under a general anesthetic, is probably the best method of differential diagnosis.

Blacktongue also must be considered. The author has never seen a naturally occurring case of nicotinic acid deficiency and believes that many cases designated as blacktongue are actually of leptospiral origin.

The final stage of chronic nephritis is symptomatically indistinguishable from acute or subacute leptospiral uremia. The advanced age of the chronic nephritis case and a history of polyuria, excessive drinking of water, and occasional vomiting over a long period may help in differentiating the two.—*Susan Mills, Vet. Rec.*, 60, (June 5, 1948): 267-272.

**BHC for Swine Mange and Lice.**—Benzene hexachloride, containing 5 per cent of the *gamma* isomer, was a successful treatment for swine mange and lice in tests made by the Hormel Foundation. In mild weather, it was applied as a spray (1 lb. BHC in 3 gal. water), and in winter it was used as a dust (1 part BHC to 9 parts Fuller's earth). Two treatments, ten days apart, were required to eradicate lice, while mange cases required only one application. According to Dr. Geo. A. Young, Jr. (*Hormel Farmer*, May, 1948), this treatment may be used on pregnant dams without fear of causing abortion. The statement was based on tests with 100 sows in all stages of gestation. An additional observation was that there were no objectionable odors or flavors in the meat of any of 48 hogs treated with BHC twelve days before slaughter.

### Fatty Degeneration of the Liver in Mink

Chaddock (*National Fur News*, June, 1948) describes fatty degeneration of the liver as a common disease of ranch-bred mink, rare in wild mink, and occurring on all the mink ranches of North America. It is a wasting disease obviously caused by unbalanced diet. The mortality ranges from 8 to 20 per cent. In an observation on one ranch containing 1,981 mink, 561 suffered from the disease. Most of the deaths occurred during the mating season. Other organic lesions were perforating gastric ulcers, renal degeneration, ascites, enlarged heart, and pneumonia.

## Nephritis in Mammals

The kidneys of man and of other mammals are structurally and functionally identical and they are susceptible to the same pathogenic influences. There is nothing to protect them from alterations comparable to those of the human being. Nevertheless nephritis, especially in the herbivores, is rare, the reason being that their kidneys are not required to eliminate large amounts of toxic, alimentary debris. Nephritis of the farm mammal, therefore, is mostly acute infection, often purulent as in equine strangles, or the acute nephritis caused by the use of irritant drugs and by generalized mange which interrupts the function of the common integument and perhaps loads the blood with toxic agents. In any event, the nephritis is acute and rarely becomes chronic and sclerotic, as in the case of diffuse nephritis of man.

Dairy cows frequently suffer from pyelonephritis due generally to puerperal infection. Where gonococcal and/or coli organisms account for the human cases of this infection, *Corynebacterium renalis* bovis is the responsible agent in cows. Another nephritis of the bovine species is seen in calves slaughtered at the age of 2 or 3 months. Histologically, this is an acute diapedetic nephritis obviously from an umbilical infection. Strangely, this form may be entirely compatible with normal growth and general health, leaving no trace of its former presence in the adult; that is, resolution is complete. Sheep suffer from the fatal nephritis, *pulpy kidney disease*, associated with an enterotoxemia due to anaërobic organisms. It occurs in lambs 5 to 6 weeks of age.

In dogs, chronic nephritis is extremely frequent. Out of 8,874 dogs observed by the Munich faculty, 4,197 (47.4%) showed a chronic renal affection. At Alfort (France), during the past ten years, it has been rare to find absolutely health kidneys. About one-half of old dogs die of uremia. The etiology is little understood since the exciting cause has long disappeared or ceased to be active when the diagnosis is made. The chronic cases can hardly be attributed to microbial causes. Except for distemper, which mainly affects the young animal, and leptospirosis, a rather rare ailment, generalized infections are rare in dogs. In distemper, there are hepatic and renal complications in the course of the disease

but in autopsies in dogs under 5 years old that died from accidents, for example, renal trouble was seldom found. The chronic case in the adult is obviously of toxic origin. What toxic agent is to be blamed? The low incidence of chronic nephritis at the Alfort clinic during the wartime shortage of meat seems to incriminate the toxic products of meat diets, putrefaction of which is certainly no less harmful than defaults of gastrointestinal digestion.

Chronic nephritis in dogs is first expressed by loss of flesh, polyuria, thirst, vomiting, diarrhea, rebellious intestinal upsets and, later, fetid breath. Urinalysis reveals the presence of albumin. The rest of the diagnostic procedure includes the usual determinations on the excretion of urea chloride and sugar, the phosphocalcic metabolism, acidosis, and quantity of water eliminated. Approaching death is marked by high blood phosphorus, hypoglycemia, acidosis, and a paradoxical rise in the excretion of glucose.

## Ketosis in Dairy Cattle

An ailment often mistaken for milk fever, ketosis (acetonemia) is due to a decrease of blood sugar rather than of blood calcium. It is most frequent in high-producing cows in the late winter and early spring, indicating that one of the causes may be a restricted ration before or after calving, or both. It is not a vitamin-A or vitamin-B deficiency, since massive doses of these vitamins are not effective. The right treatment consists of intravenous or oral administration of glucose and the feeding of some form of soluble sugar. Cases difficult to differentiate from milk fever are given calcium gluconate and glucose solution. The author (if properly quoted) is not clear in stating categorically that ketosis is a sugar deficiency and milk fever a calcium deficiency, since the two may coexist. The urine test is not infallible but is useful in conjunction with the semeiology.—J. C. Shaw, *University of Maryland*: "Ketosis in (Acetonemia) Dairy Cows." *Certified Milk*, 22, (Nov., 1947): 15-16.

Methionine counteracts selenium poisoning in cattle and sheep, Oregon investigators reported at the American Chemical Society's recent convention in Chicago.

# Dog Mange Control Tests with Chlorinated Chemicals

MARTIN H. MUMA, Ph.D., and W. T. SPENCER, D.V.M.

Lincoln and Omaha, Nebraska

RECENT successes with certain chlorinated chemicals in the control of sarcoptic mange of hogs, *Sarcoptes scabiei suis* Magn.,\* prompted these tests.

Animals used in the tests were located at the Corn States Serum Co. plant, Omaha, Neb., and the personnel of the plant cooperated fully in the work. Altogether, 28 dogs of various sizes and breeds were treated. Three chlorinated chemicals, benzene hexachloride, chlordane, and heptaklor were used in these preliminary tests. Two species of mange mites were present on the animals, sarcoptic mange (*S. scabiei canis* Gerlach) and red mange (*Demodex canis* Leydig).

In one test, 12 dogs heavily infested with sarcoptic mange and moderately infested with demodectic mange were treated with a suspension of 0.25 per cent of the gamma isomer of benzene hexachloride.

Associate entomologist, University of Nebraska, Lincoln (Muma); and regional manager, Livestock Loss Prevention Board, Omaha, Neb. (Spencer).

\*Hixson, E., and Muma, Martin H.: Hog Mange Control Tests. J. Econom. Entomol., 40, (1947): 451.

In a second test, 11 dogs similarly infested with both mites were treated with an emulsion of 0.08 per cent heptaklor. Five dogs heavily infested with sarcoptic mange, of which 3 had lesions of demodectic mange, were treated with an emulsion of 0.25 per cent chlordane. All treatments were applied by dipping the animals and holding them in the liquid for from thirty to sixty seconds with at least two complete submergences. The dip was warmed to a temperature of 100 to 110 F. Exceptionally large or heavy demodectic lesions were scrubbed with a firm-bristled brush while the animal was in the liquid.

Animals treated with benzene hexachloride and heptaklor were retained in widely separated cages but, due to a lack of space, could not be completely isolated from untreated dogs. The dogs treated with chlordane were allowed to run with untreated animals.

Ten days and two weeks following treatments, all animals were greatly improved. Lesions were healing, rough skin was scaling off, and hair was beginning to reappear on bald areas. At three weeks, most of the lesions were completely healed, the skin

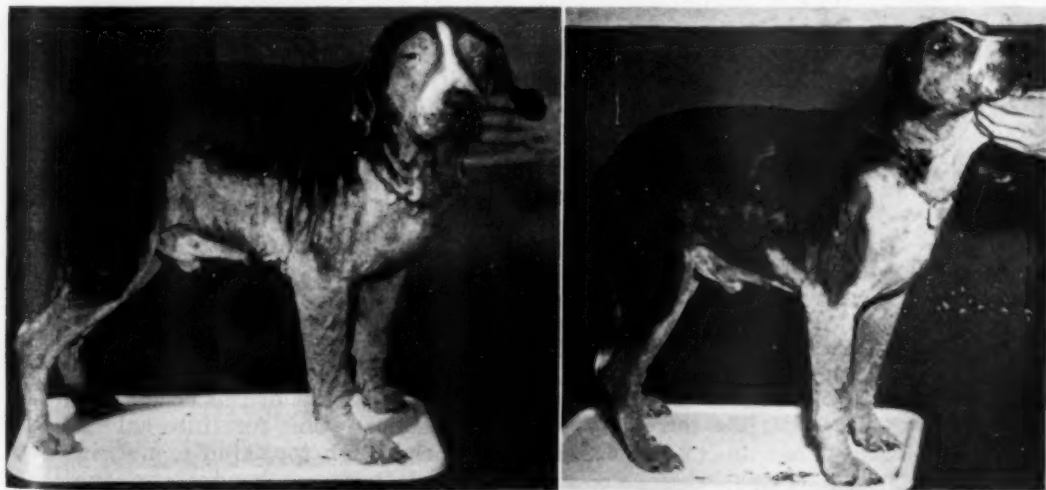


Fig. 1—Effects of a single treatment of 0.25 per cent chlordane on sarcoptic mange of dogs. Left—Before treatment. Right—Three weeks after treatment. Complete clean-up of demodectic mange was not obtained but control was striking. Note regrowth of hair and increased vitality of animal.

had a clean, healthy color, and a nearly normal coat had appeared on all except the more serious spots infested with demodectic mange. One dog with a large lesion of demodectic mange had a new, small, active lesion at one side of the healed area. This dog had been treated with benzene hexachloride. One of the chlordane-treated dogs that was heavily infested with sarcoptic and demodectic mange also had several small demodectic lesions three weeks following treatment. As isolation of the test animals was not complete, no further checks on the test were made. None of the animals showed any ill effects from the treatments.

These preliminary tests indicate that common mange, and many cases of red mange, of dogs can be controlled with one or more treatments of 0.25 per cent benzene hexachloride, 0.08 per cent heptaklor, or 0.25 per cent chlordane. Additional research should be conducted on the optimum dilution of each chemical, the optimum length of time for holding animals in the dip, and the effects of repeated treatments.

### Corrigenda

Due to a misunderstanding between the authors and editors, the article "Dosage and Blood Level of Streptomycin in Sheep," by E. R. Doll, M.A., D.V.M., and Elizabeth Wallace, B.S., was published in the July, 1948, JOURNAL (pp. 55-59) before the following corrections in the manuscript were made.

The following errors in tabulated data were due to a variation in potency of standard material for controlling the assay.

Table 3—Serum level values in this table are double the correct value.

Table 4—Serum levels in this table are four times greater than the correct values.

Table 5—Serum concentrations in this table are double the accurate values.

Table 6—Serum levels for the first three hours are accurate. Those of the fourth to fifteenth hours are double the correct values.

Table 7—Serum levels for the first three hours are accurate. Those of the fourth to fifteenth hours are double the correct values.

Table 8—Serum levels in this table are double the accurate values.

The discussion and conclusions should be corrected as follows:

From the data obtained in this study, it appears that a blood level of desired concentra-

tion can be maintained within close limits by intramuscular injection of streptomycin at three-hour intervals. Dosage at the rate of 0.25 mg./lb. of body weight maintains a serum concentration between 0.5 and 1.0 units/cc.; doses of 0.5 mg./lb., between 2.0 and 4.0 units/cc.; doses of 1.0 mg./lb. between 4.0 and 8.0 units/cc.; and doses of 2.0 mg./lb. between 8.0 and 16.0 units/cc. The 0.5 mg./lb. dose doubled the concentration over that obtained from the 0.25 mg./lb. dose with injections at three-hour intervals. The 1.0 mg./lb. dose doubled serum concentrations over those obtainable from the 0.5 mg./lb. dose, and the dose of 2.0 mg./lb. doubled the serum concentrations over those obtained from the 1.0 mg./lb. dose.

### Looks Over Antibiotic Therapy

The deluge of literature on antibiotic therapeutics was reduced to a few understandable words by Sir Howard Florey who developed penicillin, in a scholarly talk (*J.Am.M.A.*, Dec. 20, 1947:247-249) at the Centenary of the American Medical Association last June. Although the desired standard of therapeutic excellence has been almost attained by two of these "wonder drugs," all of the rest (for internal use) still lack the safety required of acceptable medicinal agents. That is to say, the antibiotic that stops microbial action without danger to the living body remains to be discovered, and it is not likely that weaker antibiotics less toxic than penicillin will be found. The hope lies in the discovery of a specific action against the given microbial agent, because *drugs* acting against both gram-positive and gram-negative organisms would, in all probability, be toxic to animal cells.

Moreover, the useful antibiotic (1) must not be quickly excreted by the kidneys; (2) must be effective in the presence of body fluids, which often exert an inhibitory action; (3) ought to be absorbed from the gastrointestinal tract; (4) should not be susceptible to destruction by enzymes; and (5) should not incite resistance to them.

The specifications reduce the chemotherapeutic agents of this class to penicillin and streptomycin for internal use and tyrothricin for topical use, notwithstanding that there are hundreds of fungi and bacteria from which weaker and stronger antibiotics have been made, tested, and described in the literature. The investigational work the many new antibiotics rep-

resent, however, is to be encouraged for thereby the perfect one may be found.

Both the philosophy of Louis Pasteur—that bacteria cannot be killed *in vivo* without injury to body cells—and that of Paul Ehrlich—that the hope of curing infections lies in chemotherapy—still stand unsettled, although the gap between the two theories was narrowed considerably by the coming of the sulfonamides and antibiotics. On the present evidence, there is confidence that others which meet medicinal requirements will be found but, said the speaker in straight forward fashion, they will be few as most of them thus far discovered are “very toxic to animal tissues.”

The explorer of penicillin compliments the American technicians, biologists, engineers, and chemists for having “translated penicillin into clinical terms.”

True as it is that certain diseases yield dramatically to chemotherapeutic agents, in so far as internal medication is concerned, these are fewer than the voluminous literature on the subject seems to indicate. To be kept uppermost in mind is that the effect of drugs *in vitro* is hardly more than a hint of what they can accomplish in the treatment of the sick.

### Necrophorus Infection in Chickens

In so far as can be determined, the literature does not contain any reference to *Actinomyces necrophorus* infection in chickens. Although this infection was not of serious consequence in the flock in which it was observed, its occurrence should be recorded.

The infection occurred in a flock of 400 6-week-old chickens; approximately 5 per cent of the birds either had active lesions about the head or were recovering. The lesions, usually covered with a hard brown scab, increased in size over a period of several weeks until a diameter of 7 to 20 mm. was attained (fig. 1). The interior consisted of a rather hard caseated mass of necrotic tissue which could be separated from the underlying tissues and easily removed. When the lesion developed to a certain point, the central core became detached and fell out, after which the remaining cavity healed rapidly. Lesions were located on various parts of the head; not more than two were observed on 1 bird.

One lesion was observed protruding through the nostril of an affected bird.

Smears made from scrapings from the interior of the cavity following removal of the caseated core, and from the under side of the caseated material itself, revealed an



Fig. 1—Characteristic lesion from which *Actinomyces Necrophorus* was isolated.

organism similar to that described by Kelser<sup>1</sup> as *A. necrophorus*. Kelser states that this organism is distinctly pleomorphic, occurring characteristically in the form of long-headed filaments and shorter rods of varying size, some so short as to appear coccoid—“the headed appearance of the long filaments is quite characteristic and is usually sufficient to identify the organism when it is present in material from necrotic processes.”

The lesions yielded an organism with all of the cultural characteristics of *A. necrophorus*. The nature of the infection would indicate that this organism is not particularly pathogenic for the chicken.—M. W. Emmel, M.S., D.V.M., Florida Experimental Station, Gainesville, Fla.

<sup>1</sup>Kelser, Raymond A.: Manual of Veterinary Bacteriology. The Williams and Wilkins Co., Baltimore, Md. (1943).

**Advantages of Udder Clipping.**—Clipping of the udder of cows brought about a significant reduction (45%) in bacteria counts in hand-milked cows, and a moderate reduction (12%) in machine-milked cows, according to University of Wisconsin investigators (*J. Dairy Sci.*, May, 1948).

# NUTRITION

## Muscular Dystrophy in a Foal

### Report of a Case

MAJOR T. C. JONES, V.C., U. S. Army, and WILLIAM O. REED, D.V.M.

*Washington, D. C. and Warrenton, Virginia*

MUSCULAR dystrophy has recently been reported in young calves by Vawter and Records<sup>1</sup> and has been experimentally produced in many species by other investigators. Nutritional muscular dystrophy, which follows diets deficient in vitamin E (*alpha* tocopherol), has been observed in rats,<sup>2</sup> guinea

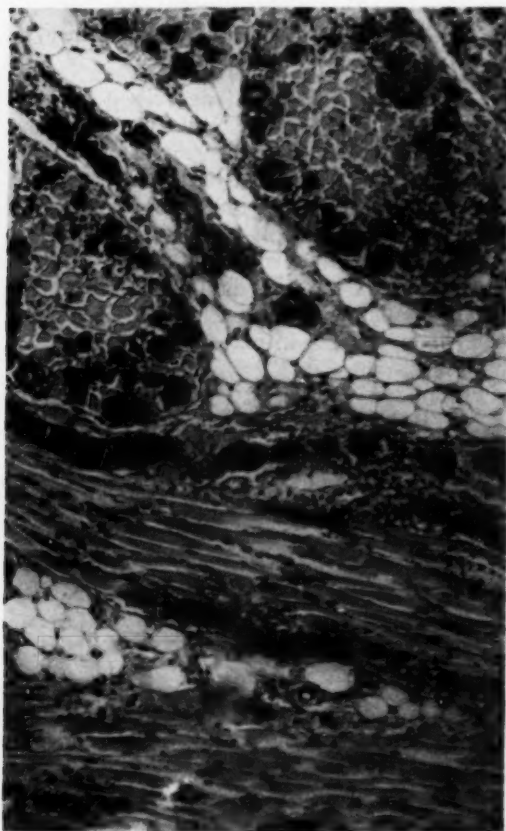
pigs and rabbits,<sup>3</sup> hamsters,<sup>4</sup> ducklings,<sup>5</sup> sheep and goats,<sup>6</sup> mice,<sup>7</sup> and tree kangaroos.<sup>8</sup> Except for a brief note by Hobmaier,<sup>9</sup> we have been unable to find reports of this disease in horses.

We have observed deaths of newborn foals in which careful necropsy and bacteriologic studies failed to disclose the underlying cause of death. In such cases the bacteriologic findings may have been negative or, more often, may have consisted of mixed cultures of such organisms as staphylococci, streptococci, and coliform bacteria. The pathologic findings, however, were not always consistent with infection with such organisms, since no pyogenic or other tissue reaction was found. Furthermore, lesions of virus abortion could not be demonstrated.

### REPORT OF A CASE—CLINICAL DATA

A breeding establishment for Thoroughbred horses had about 200 mares present on the farm in the spring of 1947. Only 75 were expected to foal; the other mares were kept only long enough to be bred, with the result that the transient population was variable. All of the mares were allowed access to pasture, the grass of which was of fair quality at this time. Approximately 10 lb. of recleaned oats, weighing 40 lb. to the bushel, and about 1 lb. of wheat bran were fed to each mare daily. Pennsylvania hay, containing 60 per cent clover and 40 per cent timothy, was allowed at will. This hay was not considered entirely suitable in quality but was the best obtainable.

The only loss which was sustained before the first of May, when 50 mares had foaled, was that of a near-term foal born dead on April 24, 1947. Rather suddenly, 7 foals, all under 10 days of age, became ill with acute diarrhea, depression, and anorexia.



—AIP Negative 190585—1

Fig. 1—Tongue. Degenerative changes seen in cross and longitudinal sections of muscle bundles. x 114.

Three of these foals also showed acute inflammatory arthritis involving one or more of the joints. This report is concerned with the case of 1 of these 7 foals, a Thoroughbred filly, in which the symptoms of enteritis were evident by the fourth day of life. The foal refused to nurse and appeared depressed; it had severe diarrhea, accelerated respiration and pulse, and showed signs of dehydration. Treatment was promptly instituted and included the oral administration of 30 gr. of sulfathaladine every three hours, and of dextromaltose solution containing 2 cc. of aromatic spirits of ammonia every two hours, along with 2 oz. of kapectin. Blood transfusions were also given at the rate of 500 cc. of whole blood daily, with 250 to 500 cc. of 10 per cent dextrose in saline solution administered subcutaneously. When the foal became prostrate, it was fed with a stomach tube. Partial paralysis of the tongue was noted during the last few days of life. The filly failed rapidly and died when 9 days of age.

#### OBSERVATIONS AT NECROPSY

*Gross.*—The cadaver was that of a bay Thoroughbred filly, which had been packed in ice for about ten hours. The estimated weight was 125 lb. There was no rigor mortis or distention of the abdomen. The skin was denuded of hair in several areas, particularly over the bony prominences of the periorbital region and the hip. The perineum and tail were soiled with loose, yellow-green feces. Neither enlargements of the superficial lymph nodes nor any external tumors were noted.

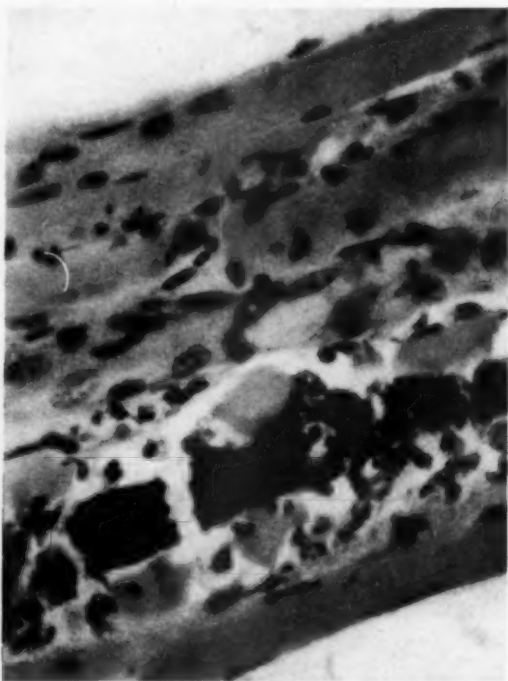
The cadaver was opened from the left lateral position by removing the abdominal wall and left costal arch. The abdominal and thoracic viscera were in the usual position; slight subcutaneous hemorrhage was noted in the vicinity of the left jugular vein, and a small amount of dark red, serosanguineous fluid in the pleural cavity. The submaxillary and other superficial lymph nodes appeared to be normal. The larynx and trachea contained considerable frothy, red-stained exudate. The hilar lymph nodes were somewhat enlarged, edematous, and congested. On the pleural surface of the left lung were several tiny, gray, umbilicated foci, approximately 1 cm. in diameter. Palpation of the lung revealed many localized areas of increased resistance, which, from the pleural surface, appeared

as deep red, patchy areas, many of them having a small, circumscribed gray zone in the center. Moderate interstitial edema was recognized in parts of the interlobular septums. The right lung was essentially similar to the left, with some subserous gray foci and areas of plum colored consolidation, particularly numerous in the apical lobe.

Examination of the heart revealed no gross lesions in the endocardium, pericardium, valves, and coronary vessels; only in the myocardium were a number of red patches of irregular size and shape observed. The aorta, blood, and lymph vessels exhibited no changes.

The spleen was of approximately normal size; it contained little blood; the splenic corpuscles were not particularly prominent, nor was the red pulp excessive.

The liver was of normal size and contained some irregular, mottled, gray areas. The thymus gland was entirely within the thorax and measured 10 by 2 by 4 cm. No lesions were grossly apparent in the endocrine glands, except in the right adrenal where the medulla was relatively larger



—AIP Negative 101351

Fig. 2—Tongue. Note swelling, fragmentation, and calcification of muscle fibers. x 500.

than the cortex, although both glands were of approximately normal size.

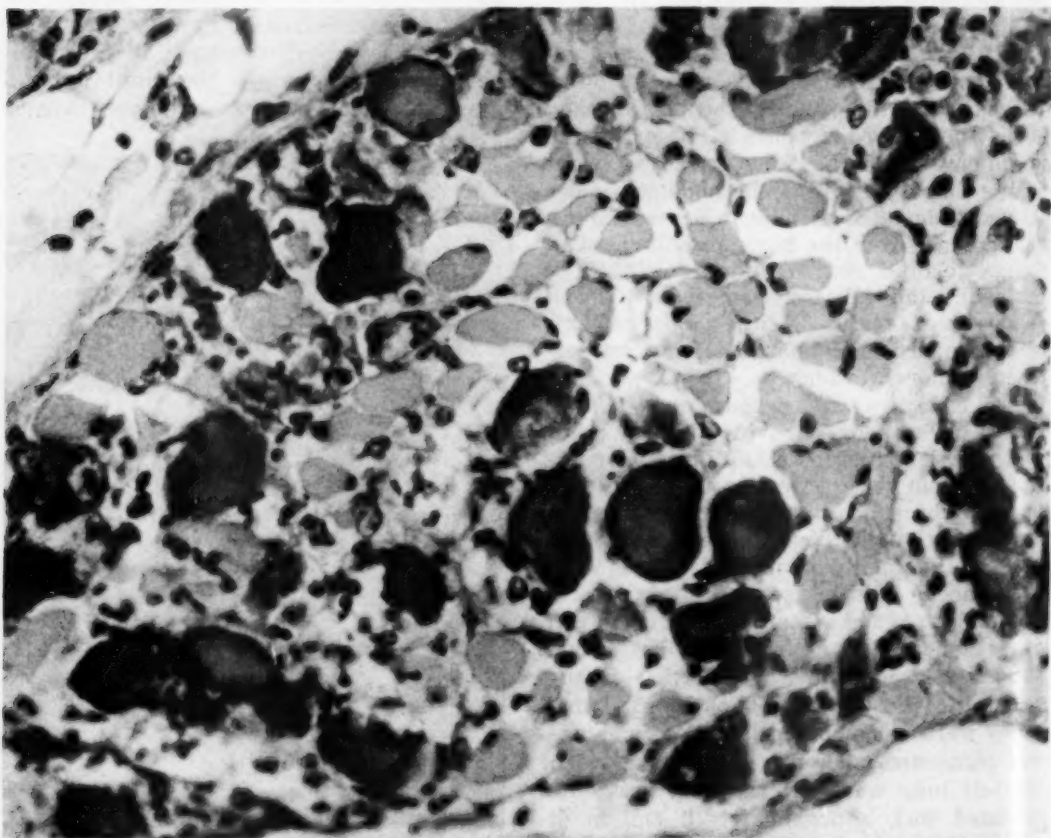
The dorsum of the tongue was covered with a rather thick, gray, tough necrotic membrane. No gross lesions were noted in the musculature of the tongue or in the esophagus. The stomach contained a small amount of greenish-stained, fetid material mixed with bits of straw. The contents of the duodenum were yellow, and mucus was present in excessive amounts here and also in the jejunum, ileum, colon, and rectum. The walls of the jejunum and ileum were red, and those of the colon diffusely congested and showing denuded areas from which the mucosa had been shed into the lumen. The contents of the colon were relatively firm in consistency.

Both kidneys were slightly enlarged. The cortex of the left kidney was gray and the medulla was sharply demarcated by its contrasting dark red color. The capsule

stripped with ease, exposing a smooth subcapsular surface. The right kidney was essentially similar, except for dark red blotches and radial streaks in the medulla. The remainder of the urinary tract appeared unchanged.

The uterus and vagina contained a considerable amount of yellowish, creamy exudate which somewhat tenaciously adhered to the mucosa. Otherwise the genital tract was without apparent lesions.

In the left eye, the cornea was cloudy; the pupil was closed, and a small amount of fibrinous exudate was present in the anterior chamber. When fixed in formalin, the eye measured 35 by 38 by 37 mm.; the iris was not visible through the cornea due to a cloudy gelatinous exudate in the anterior chamber. The lens adhered to the posterior surface of the iris, and the vitreous fell out on opening the globe. In the right eye, the pupil was open, but a small



—AIP Negative 190587—2

Fig. 3—Tongue. Muscle fibers in cross section; note fragmentation and calcification, as well as loss of some fibers. x 500.

opacity was seen in the cornea near the ventral limbus. After fixation, the globe measured 36 by 38 by 37 mm. The iris was not visible through the cornea. Upon opening the globe it was seen that the iris was bound to the anterior lens capsule; the vitreous, which was cloudy, fell out readily.

The vessels of the meninges were somewhat engorged. The brain was fixed entire in 10 per cent formalin, and later transverse serial sections were cut. In none of these sections nor in the spinal cord were lesions observed.

The bone marrow was uniformly red brown. In the hip joint there was an excessive amount of dark, straw-colored synovial fluid. The musculature was generally somewhat atrophic.

**Bacteriologic.**—Specimens for bacteriologic examination were collected from the liver, spleen, heart blood, synovial fluid of hip joint, peritoneal fluid, kidney, and urachus. Subsequently, mixed cultures were recovered which included organisms of the coli-aërogenes group, nonhemolytic staphylococci, and a few nonhemolytic streptococci of the Lancefield group D.

**Microscopic.**—The lungs contained several rather clearly demarcated areas of necrosis in which there were large numbers of bacteria. In the center of these lesions, which were usually adjacent to the bronchioles, there was considerable necrotic tissue debris, although elsewhere the architecture of the lung was well preserved. Gram stains of these central areas revealed large numbers of gram-positive bacteria, including coccoid organisms in short chains and irregular masses, which were interpreted to be streptococci. Also present were many branching filamentous fungi. Gram-negative organisms may well have been present but were not recognized. Surrounding these areas of necrosis were large zones of consolidation in which the lung was filled with serum and blood cells. These elements flooded the alveoli as well as some of the larger bronchioles. The interlobular trabeculae in many areas were edematous and thickened.

No lesions were recognized in the endocardium, epicardium, or in the aortic ring. A few tiny foci of calcification were seen in scattered myocardial muscle fibers (fig. 4), and calcareous and degenerative changes in certain Purkinje fibers.

The aorta presented no significant

lesions, but in an adjacent lymph node there was some hemorrhage, considerable edema, and a paucity of lymphoid cells.

No significant lesions were found in the liver, although a careful search was made for foci of necrosis and intranuclear inclusions.

The spleen was somewhat congested and contained rather liberal amounts of blood pigment. The most striking change was in the lymphoid elements. The germinal center of practically every malpighian corpuscle was replaced by a circumscribed mass of hyalin material containing a few nondescript cells; only a few true lymphocytes and no lymphoblasts were seen. An occasional colony of bacteria was recognized but there was no adjacent inflammatory reaction. Hematopoietic cells were not uncommon, and megakaryocytes were seen occasionally, particularly in the venous sinuses.

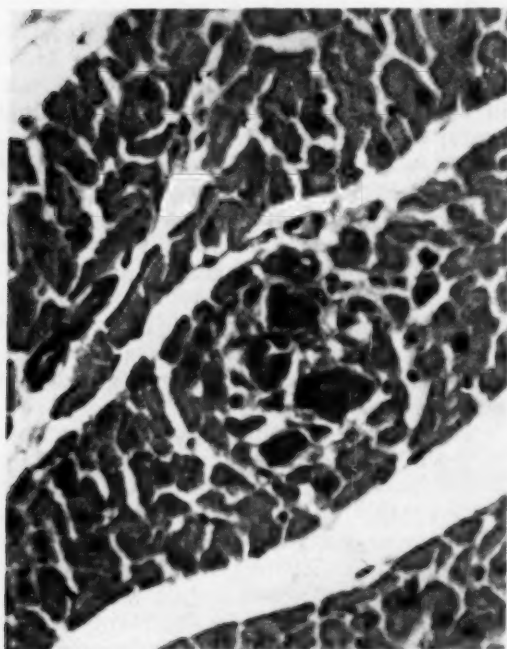
The acini of the thyroid gland were lined with cuboidal or low columnar epithelium, which varied in height but contained uniformly staining colloid. Most obvious in the thymus gland was severe depletion of lymphocytic elements. Hassell's corpuscles were recognized; neutrophils were present in rather liberal numbers and foci of eosinophils at several points. The vessels were engorged with blood and the stroma was very edematous.

In the adrenal glands, hemorrhage had occurred at several points in the capsule. The cells of the zona reticularis and zona fasciculata were considerably disorganized, presumably as a result of postmortem change. The cell cords were broken up and the cells stained poorly. The vessels of the medulla were somewhat engorged.

The pancreas showed changes in some of the larger ducts where the epithelium was desquamated, and bacteria were noted in the lumen. A few recent hemorrhages were seen in the interstitial stroma.

Although the tongue was covered with a thick layer of debris, the epithelium was essentially normal and small bits of lingual salivary glands were present. Striking changes were found in the striated musculature of the tongue (fig. 1). Many degrees of degeneration were noted in the individual muscle bundles: in some, swelling, loss of differential staining, and fragmentation; in others, absence of the muscle fibers, with partial or complete replacement by cal-

careous deposition (fig. 2, 3). In many areas, the sarcolemma cells were increased, and the spaces left by necrosis of muscle bundles were further filled by lymphocytes and neutrophils. Although many individual muscle fibers throughout the tongue



—AIP Negative 190585—4  
Fig. 4—Myocardium. One of several minute calcareous foci in musculature. x 500.

were affected, involvement was more severe near the surface.

The blood vessels of the carotid and mandibular salivary glands were congested but otherwise no significant lesions were seen.

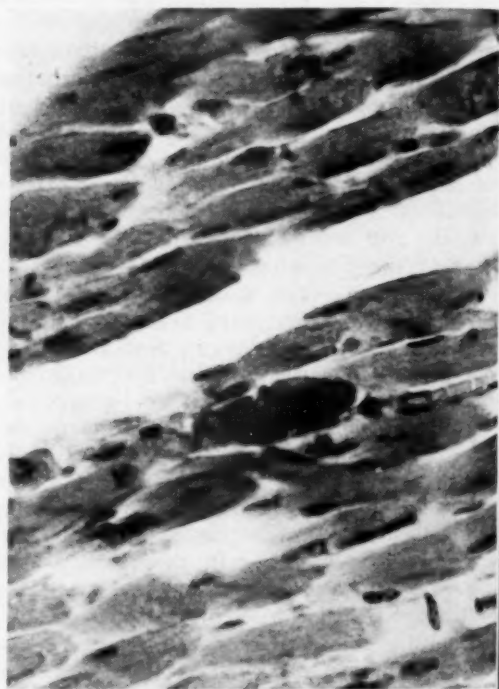
In the small intestine, the tips of the villi were eroded; there was an increase in the number of goblet cells, but very little inflammatory change in the mucosa or submucosa. The goblet cells were very large and in many places had ruptured. Areas of the lining epithelium had desquamated and the mucosal stroma often contained lymphocytes and plasma cells.

One splanchnic ganglion taken from the sublumbar region showed no significant change, but in an adjacent lymph node there was edema, hemorrhage, and depletion of the lymphoid elements.

Congestion was general throughout the kidneys but was particularly severe in the medulla. The small size of the glomeruli

was compatible with the age of the animal. An occasional thrombus was seen in the blood vessels, some of which contained colonies of fungi. A few microabscesses were present in the kidney parenchyma. Albuminous material was seen in a number of the convoluted tubules. Some of the lining epithelial cells were vacuolated and others contained small granules of canary yellow pigment.

Examination of the uterus revealed that the endometrium consisted of a single layer of simple columnar epithelium supported by a thick collagenous layer of fibrous connective tissue. This layer was devoid of glandular structures, but lymphocytes and neu-



—AIP Negative 190585—5  
Fig. 5—Rectus oculi muscle. Small foci of calcification in muscle bundles. x 500.

trophils were quite numerous throughout the stroma and were also scattered in the epithelium. In the ovary, there were several developing and a few atretic follicles. Large numbers of individually discrete macrophages, containing brown pigment granules, were recognized.

In the brain, the vessels of the pons, cerebral cortex, and medulla were generally engorged with blood and contained considerable formalin pigment. There were areas

of edema in the cerebellum. In the caudate nucleus were seen a few small perivascular aggregations of lymphocytes with increased cellularity in the adjoining parenchyma. The capillaries of the anterior lobe of the hypophysis cerebri were heavily engorged with blood, and congestion of somewhat lighter degree was noted in the pars nervosa and in the intermediate lobe.

In the left eye, the corneal epithelium was eroded toward the center of the cornea; loss of stromal nuclei and infiltration of the superficial layers with polymorphonuclear leucocytes were also apparent. The epithelium of the iris was desquamated in several places, with the cells lying free in small aggregations in the anterior chamber where neutrophils and serum were likewise present. The iris contained a large number of neutrophils, lymphocytes, and plasma cells. The vessels of the ciliary body and anterior choroid were severely engorged. The stroma of the ciliary processes contained numerous plasma cells, and the vessels in this region were engorged with blood. Bits of iris pigment adhered to the anterior lens capsule. Lymphocytes and plasma cells were numerous in the posterior chamber, zona ciliaris, and vitreous humor. The periocular vessels were engorged with blood. No significant lesions were seen in the optic nerve. In the right eye, the cornea was intact, but the rest of the ocular structures showed changes similar to those of the left eye. Sections of the ocular muscles contained several tiny foci in which the individual muscle fibers had degenerated and become calcified (fig. 5).

The marrow of the sternum was free from recognizable pathologic change.

#### INTERPRETATION

The immediate cause of death in this case was believed to have been bronchopneumonia of the aspiration type. The recovery of various species of bacteria in cultures was not regarded as significant since these organisms were probably secondary invaders. We have previously observed acute purulent iridocyclitis in young foals during the course of overwhelming infections, but its significance in this particular case was not understood. The muscular dystrophy seen in the tongue, ocular muscles, and heart in this case was believed to be of signal significance, since it suggested the underlying factor, which was believed to be a subop-

timal intake of vitamin E (*alpha* tocopherol) by the mare during pregnancy. Unfortunately, sections were not taken from all of the muscles, hence the full extent of dystrophy could not be determined.

The occurrence of this condition in a young foal suggests that microscopic studies of the musculature should be included when foals and fetuses are examined at necropsy, and that further research on the vitamin E requirements of horses is needed. The possible influence of vitamin E deficiency in the death of newborn foals should certainly be explored further.

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The liver is influenced greatly by the protein state of the body. In periods of high protein intake, both the size of the liver and its protein content increase rapidly, while the reverse is true during fasting and during periods of low nitrogen intake.—*Ann. Surg.*, Feb., 1948.

**Vitamin D Overdosage in Dogs.**—Profound pathologic changes have been observed in dogs receiving daily excessive doses of vitamins D<sub>2</sub> and D<sub>3</sub> for several months. Changes recorded in orthodontic studies included pathologic calcification of connective tissues of the periodontium, distorted and deformed roots, pulp-stone formation, and advanced paradentosis.—*Am. Feed Mnfr. A. Res. Bull.* 215.

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# EDITORIAL

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## Attendance at Conventions

Regular attendance at veterinary meetings is necessary in order that we may keep up to date on developments in our field. Unless you find this premise acceptable, read no more . . . until you have turned back to the program details on pages 13 to 27 of the July JOURNAL.

Attending an AVMA convention is equivalent to a postgraduate or refresher course in veterinary medicine. Education is only begun in veterinary college. Because knowledge is not static, any training gained in school or elsewhere may be completely obsolete in ten years, unless there has been a studious cultivation of the science and the art of veterinary medicine by a careful study of patients, by continued reading of professional journals and new books, and by regular attendance at veterinary meetings.

Your well-read clients are versed in the sciences which you must apply in the practice of the art of veterinary medicine. Have you asked yourself recently, "On how many of the subjects listed for the San Francisco program am I better informed than my good client who reads the agricultural magazines and attends meetings of livestock breeders' associations?"

A program such as we list for the Eighty-Fifth Annual Convention does not happen by accident. No worthwhile convention program ever does. The officers of the six sections have served as the Committee on Program, and they have worked since January to assemble an outstanding group of speakers from among the AVMA members and from men working in other fields but interested in some phase of the problem of animal health and nutrition and its influence upon the health and food supply of the human race. The program has been assembled for the purpose of bringing together in four days the men who can tell us what is happening in the forward movement of our profession, and what each one of us should be looking for during the coming months if we seriously expect to

discharge our moral obligation to use all available knowledge for the benefit of mankind and particularly that segment which resides in our own community and depends upon us to deliver a complete veterinary service.

The Committee has worked diligently to make it possible to present a balanced program. Every phase of veterinary medicine will be represented by some of its progressive members, and together they offer an opportunity for a quick review of recent discoveries and findings such as no active member can really afford to miss.

And here is an extra dividend. If you have a particular problem, this convention will afford an opportunity to get personal help with it. Among the more than 1,000 veterinarians who will register, you will find several with interests akin to yours. They will be glad to talk over your problem and give you the benefit of their experience. Or if you have had a noteworthy experience, the discussion periods on the several programs will afford an opportunity to mention them, so that others who may now be facing the same problem may have the benefit of your greater experience.

All of us are forced to budget our time and our money so that we may receive maximum returns. But in the light of the great good which will accrue from attendance at the convention, we really face the question: Can we afford to miss it?

And of course, the scientific program does not measure the complete value of the meeting. As the JOURNAL has pointed out in preceding issues, there will be an opportunity to enjoy professional and social contacts. Undoubtedly, this Eighty-Fifth Annual Meeting will be the occasion for assembling the largest and most outstanding group of veterinarians ever to gather on the Pacific Coast. This will insure contact with hundreds of veterinarians in addition to those who participate in the program.

The meeting days are equally well filled

for all members of the family. And the trip to and from the meeting will be a complete change from the routine of practice and of family life at home. The time spent on such a trip will permit the family to draw more closely together—in a way which can only occur when each member has been relieved of the duties and habits of a well-ordered life.

Break away from the practice, play with your family, and then return from the Convention with a fund of new ideas for use in your practice and with a much stronger bond holding your family together.

Can you afford to miss this meeting? Can you miss it and still render the kind of service your community deserves and demands? Can you deny your family the companionship and fellowship of a trip together?

Or, shall we look for you at San Francisco?

### Outlook on the Baby Pig Crop

Statistics are seldom interesting, but when they can be interpreted to tell a story or to emphasize a point there is reason to use them.

About 8 million sows produced nearly 61.5 million living pigs between Dec. 1, 1947, and June 1, 1948, according to government estimates. This figure is about 3 per cent below the number of pigs farrowed one year earlier, and it immediately led to speculation as to the effect of this decline on the price of pork. That some of this speculation was the result of only a partial analysis is indicated by the prediction that this would almost certainly mean continued high or even rising pork prices. Further study of the statistics does not bear out this conclusion. There is a favorable side to the picture.

Although the number of living pigs farrowed was down from a year ago, this was accomplished with 8 per cent fewer brood sows. In fact, the average number of living pigs per litter (6.44) has been exceeded only once in the twenty-five years of official pig crop reporting. As veterinarians and swine breeders know, large litters of livable pigs almost always mean thrifty pigs that will make rapid and economical gains from the limited supplies of feed likely to be available. Therefore, the pig breeder stands to have a good year financially, but on the basis of efficient use of feed by

healthy animals, rather than on artificially high prices based on a world shortage of pork.

And this factor of larger litters of living pigs brings us to the point we want to emphasize. The official report credits favorable weather for the relatively good pig crop, but we believe that this is overlooking one item of great importance. More than a year ago, the American Feed Manufacturers Association and the AVMA jointly sponsored a conference on baby pig losses, and this was followed by other conferences under the same joint sponsorship.

These conferences were attended by men who knew what was happening to the pig crop, and they expressed some very cogent ideas on the reasons for these happenings. The culmination of these conferences was a set of recommendations from a Committee on Management and Nutrition, and another set of recommendations from a companion Committee on Diseases and Ailments of Suckling Pigs. These reports were published in the JOURNAL, the management and nutrition portion in May, 1948 (p. 392), and the disease portion also in May (p. 349) but with a table for differential diagnosis which, unfortunately, was separated from the committee report and appeared as an insert in the April, 1948, issue (facing p. 306).

Both of these reports were widely circulated, and we believe that they deserve mention as factors in the improved livability of the 1948 crop of baby pigs. We hope that the coming years will fulfill our expectation of a steady improvement in the health of pigs and a gradual increase in the number of pigs per litter which are raised to market age.

One student of the problem points out that knowledge of swine nutrition today is at about the same stage as poultry nutrition was twenty-five years ago. We might add that there is likewise plenty of room for improvement in the measures for disease prevention and control.

Research discoveries may come by the dozens yet do no good unless livestock owners put them to work. Stressing and restressing the advantages of balanced rations, scientific management practices, and disease prevention should be the policy of every practicing veterinarian who deals with swine breeders—and it applies equally well to all other practitioners.

## Coagulants and Anticoagulants in Veterinary Medicine

In the light of current knowledge about agents that modify the coagulation time of blood, it is reasonable and timely to inquire into their clinical application in veterinary medicine. The discovery of these agents—the one group augmenting and the other depressing coagulation—creates the impression that henceforth selections from the two groups are to be employed for pathologic states in which one or the other is wanted. The question in clinical veterinary medicine is where and when.

The mechanism of coagulation is better understood (or at least better explained) than the *modus operandi* of the modifiers, but the fact remains that the process of coagulation can be accelerated or decelerated by artificial means.

On the side of the coagulants is fat-soluble vitamin K discovered by Dam of Denmark in 1935. From the liver of hogs, and later from alfalfa, Dam isolated a fraction that cured the hemorrhagic aberration affecting newly hatched chicks. The Council on Pharmacy and Chemistry of the American Medical Association has named it *menadione* which is now widely employed in parturient women and their newborn. Dosing the expectant mother prevents hemorrhage in her baby. Other coagulants employed orally and topically to augment coagulability are *thrombine* of bovine origin made from prothrombin, calcium, and thromboplastin; *gelatin sponges* which absorb 50 times their weight of water; *fibrin moss* used as a tampon; the dye *toluidine* used intravenously to control bleeding; *protamine sulfate*, and others which reportedly have reliable coagulant action.

On the anticoagulant side are *heparin* and *dicumarin*. The former was discovered by McLean of Johns Hopkins University in 1936, and the latter, which is the active principle of toxic sweet clover, was first isolated by Link of the University of Wisconsin in 1941. *Heparin*, on the contrary, is mostly known by its biologic properties. Though its chemical identity is unknown, it is thought to be a polysaccharide, is clas-

sified as an ester of mucotin sulfuric acid (*J. Exptl. Med.*, Jan. 1948),\* and has been obtained in a high degree of purity by laboratorians. Anticoagulant processes are often referred to as "heparin-like." Its cost is prohibitive for use in animals.

The action of *heparin* is immediate and relatively transient. On the other hand, the action of *dicumarol* begins after twenty-four to thirty-six hours and lasts for two to three weeks. A definite posology has been developed for these two products in human medicine.

The sole purpose of this brief is that of introducing the subject for whatever importance it may have in clinical animal pathology. Except for their topical use in the surgery of bleeding wounds, precise indications for these remarkable agents remain to be described in our field. Animals do have blood and doubtless all of the anomalies related to the speed of its coagulation.

## Milk-Borne Tuberculosis

Ever since Robert Koch at the turn of the century attempted to discredit the idea that man can contract tuberculosis from cows and Theobald Smith typed the tubercle bacillus, the question of intertransmissibility of the disease from animals to man has been debated in the medical, veterinary, and agrarian circles. Even though physicians have noticed that nonpulmonary tuberculosis of children vanished where tuberculous cattle had been eliminated, the die-hards have kept the controversy alive. For example, when an article in the Swiss journal *Gynaecologia* said "Many of these [tuberculous] infections were undoubtedly milk-borne," a writer in the *British Medical Journal* challenges the generality on the ground that "bovine infection is not as common now as some people suggest . . . even those forms of tuberculosis so persistently suggested (*italics ours*) as being milk-borne."

What's the matter with *persistently* in stamping out a plague? Pray tell! Veterinary medicine in the U. S. A. has been quite successful in stamping down tuberculosis, piropasmosis, glanders, blackleg, anthrax, *et al.*, not by debating over avenues of infections, but by shutting all of the gates and taking no chances—while the debate goes on.

\*Garrott, Allen J.: Heparinemia (?). An Anticoagulant in the Blood of Dogs with Hemorrhagic Tendency after Total Body Exposure to Roentgen Rays. *J. Exptl. Med.*, 87, (Jan. 1, 1948): 71-85.

# CURRENT LITERATURE

## ABSTRACTS

### Carcinoma of the Omasum in a Sheep

This very rare tumor was found in the omasum of a ewe that was killed after having had vague symptoms of illness for several months. The tumor, about the size of a hen's egg, was grayish in color, had a cauliflower-like appearance, and was ulcerated. The neoplasm had invaded the muscle coats of the omasum. There were metastases in the liver, portal lymph nodes, omentum, and diaphragm. Microscopically, it was a squamous cell carcinoma.—[E. Hanke: *A Case of Primary Carcinoma of the Omasum in a Sheep*. *Skand. Vet. Tidsskr.*, 37, (Apr., 1947): 193-198.]—A.G.K.

### Human Tuberculosis Eradication Progress in Minnesota

Through a six-point program aimed at eradication of tuberculosis in Minnesota, mortality from this disease was reduced from 20/100,000 in 1911 to 20/100,000 in 1947. There were 586 deaths due to tuberculosis in 1947, compared with 2,522 in 1911. Moreover, during this period, there was a decrease of 88 per cent in deaths among children under 15 years, and a decrease of 93 per cent among infants from birth to 1 year.

Today, several hundred beds are vacant in sanatoriums, whereas in 1926 all beds were occupied and there was a long waiting list. A further example of the dramatic reduction in tuberculosis morbidity and mortality is found in the University of Minnesota medical school and in a demonstration school of nursing. About 20 years ago, 4 to 19 per cent of the students in those schools developed demonstrable tuberculosis lesions, and several died. In the past few years, only two students have developed x-ray-detectable lesions, and there have been no deaths. In 1928, 33 per cent of all students entering the University reacted to tuberculin; in 1946, only 6.4 per cent reacted.

The program comprises (1) provision for adequate isolation and treatment of contagious cases; (2) tracing to sources of infection from all children; (3) tracing contacts of contagious adults who have died or are still alive; (4) tracing infections transmitted by domestic animals; (5) chest x-ray surveys; and (6) a tuberculosis eradication program, employing

the tuberculin test to detect cases not revealed through mass chest x-ray surveys. The author declares that these procedures are "applicable anywhere" and "constitute the only known method by which tuberculosis can be eradicated."—[J. Arthur Myers: *Eradication of Tuberculosis by Epidemiological Methods*. *Am. J. Pub. Health*, 38, (Apr., 1948): 516-524.]

### Rabbits Experimentally Infected with *Trypanosoma Equiperdum*

Infection in rabbits was "infallibly" induced by intraperitoneal or subscrotal inoculation with the blood of infected horses in which the protozoa appeared in the peripheral circulation.

Successive passages were made through rabbits and were easily achieved by intraperitoneal, subscrotal, subpreputial, sublabial, or intravenous inoculations.

From the evidence presented, it seems highly probable that the genital organs, especially the subcutis of external genitalia and the testicles, are the seat of predilection for the present trypanosome.

Symptoms in rabbits infected with Manchurian covering disease (dourine) portray a rather close resemblance to those appearing in naturally infected horses.

The authors hasten to point out that complete affinity to the tissues of small animals is not in all instances successful.—[R. Matsushima, T. Makita, H. Ikegami, and N. Kano: *Jap. J. Vet. Sci.*, 8, (1946): 41.]—K.F.B.

### Infection in Cattle with Group N Streptococci

These streptococci (not the same as group N of American investigators) were previously considered to be nonpathogenic. In a herd of 17 cattle, 11 were found to be infected with streptococci that did not react with group B or C serum. There was clinical evidence of infection and abnormal milk. Fifty-seven strains isolated from the herd, found to be *beta*-hemolytic, did not react with group A, B, or C serum. They did not hydrolyze sodium hippurate. They fermented trehalose, lactose, and sucrose but not sorbitol, mannitol, inulin, raffinose, or esculin. Although these streptococci do not appear to be capable of producing serious lesions, they

must be regarded as a cause of udder disease in any program of mastitis control.—[Sven J. Olsen: *Infection with Group N Streptococci: (Ernst) in Cattle. Skand. Vet.-Tidskr.*, 37, (June, 1947): 333-349.]—A.G.K.

### A Survey of Literature from Sweden

The following is a survey of the *Skandinavist Veterinär-tidskrift*. Dr. A. G. Karlson, Rochester, Minn., prepared the abstracts.—The Editors.

**Distribution of Material Infused Into the Udder.**—The mammary glands of 25 cows were studied following the injection of dyes—trypan-flavine solutions and India ink—in order to learn the distribution of agents infused into the udder for the treatment of mastitis [37, (Oct., 1947): 565-596]. The dye stained the tissue for gross inspection but could not be detected on microscopic sections. However, particulate matter, such as the particles in India ink, could be seen in sections. It was found that the distribution of the materials in the gland was not uniform. The intensity of the India ink decreased dorsally. The presence of fibrotic areas prevented uniform distribution of infused dyes. In some animals, India ink particles were seen in alveoli whereas they were not seen in others. When large amounts of material (1,000 to 1,500 cc.) were used, the staining of tissues was more pronounced but there was still an unequal distribution of dye. Massage of the udder did not seem to increase the amount of the tissue stained. Experiments on four dry cows indicated that the dry state did not increase the distribution of infused agents. In some glands, there were foci of infection and alveoli that contained streptococci in which no traces of India ink could be found.

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**Lymphadenosis in Cattle.**—In early cases of lymphadenosis, the use of brewer's yeast and the trace elements copper, cobalt, and manganese had a curative effect. In areas where the disease was prevalent, the trace elements alone were capable of preventing its occurrence. Cases of spontaneous recovery were known to occur, however. It is suggested that these observations indicate the importance of external factors in the development of lymphadenosis in cattle [37, (Oct., 1947): 604].

• • •  
**An Outbreak of Salmonellosis in Chickens.**—*Salmonella Thompson* was isolated from 12 of 45 chickens which were being examined to determine the cause of a severe outbreak of rhinitis on a large poultry farm [37, (June, 1947): 365-380]. It is thought that a subclinical infection with the bacterium was activated by the virus infection which was causing the rhinitis. Serologic tests on serums from 5,667 chickens on the farm revealed that 32 reacted to *S. Thompson* antigen. The chickens had been fed waste products which included imported egg

powder. *S. Thompson* was isolated from the feces of a human patient with salmonellosis who had eaten in a restaurant supplied by this poultry farm.

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**Observations on the Diagnosis of Anthrax.**—A polychrome stain, adequate for demonstrating the capsule of the anthrax bacillus, is made by adding 1 drop of 0.1 normal potassium permanganate solution per cubic centimeter of Loeffler's methylene blue and boiling for fifteen minutes. The spores and capsules may be demonstrated in smears from cultures in citrated blood after cultivation for as short a period as four hours. The identification of anthrax bacilli by biochemical reactions on differential medium is of no value in routine practice. Rapid agglutination tests or mouse-protection tests are also unsuited for the identification of anthrax bacilli. [37, (Sept., 1947): 530-541].

• • •  
**Cytoplasmic and Intramuscular Inclusions in Spontaneous Canine Distemper.**—A histologic examination was made on tissue from 28 cases of naturally occurring canine distemper [37, (June, 1947): 350-364]. The trachea, bronchi, lungs, liver, ductus choledochus, renal pelvis, bladder, spleen, hippocampus major, and mesenteric lymph nodes were examined. Fixation of tissues with a sublimate fixative and the use of Lentz stain appeared to give better results than the use of alcohol or formalin fixation and Giemsa or hemalum-eosin.

Intranuclear and cytoplasmic inclusions were found in the tracheal mucosa in 52 per cent of the cases and in the bladder in 48 per cent. Inclusions were found in either one of these tissues or in both in 70 per cent of the cases. Sections of the ductus choledochus presented inclusions in 44 per cent of the animals. In 10 per cent of the dogs there were inclusions in one or more of these tissues. The incidence in other organs was bronchial mucosa 26 per cent, lungs 41 per cent, renal pelvis 30 per cent, spleen 30 per cent, mesenteric nodes 30 per cent, hippocampus 17 per cent. None were found in the liver. Ninety per cent of the cases had inclusions in one or more of the tissues examined. The inclusions varied in size and shape, some being as large as the nucleus of the cell. Most of them were cytoplasmic.

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**Melanoblastic Tumors of the Skin and Cutaneous Mucous Membrane in Dogs.**—In most of the melanomas are of epidermal origin but in animals it has been thought that tumors appear to arise more often from mesodermal tissues.

The author studied 15 cases of which 14 had involvement of the skin and 1 had the lesion in the buccal mucosa [37, (Apr., 1947): 207-234]. Thirteen animals were over 5 years old; 6 were Airedales. The tumors occurred on the head or the distal portions of limbs. The histologic character of the neoplasms was varied, but

most of them consisted of large, clearly defined polygonal or spherical pigment cells in poorly defined clumps. In some cases, the cells were spindle-shaped, arranged in an alveolar or diffuse manner. In these, the pigment was scanty or absent.

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**A study of Rachitis in Calves.**—The paper presents a discussion on normal development of bone, and discusses the pathogenesis of rachitis. Specimens from 305 calves were examined and 15 cases of rachitis were found [37, (Aug., 1947): 483-500]. These were animals from 2 to 4 months old. It was not observed in newborn calves which led to the conclusion that the disease is not congenital. Rachitis produces deformities of the bones and is not fatal in itself. It occurs in connection with digestive disturbance and anemia. Fatalities result from intoxication from the rumen.

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**Recent Experiences in the Treatment of Fowl Paralysis.**—The resistance to fowl paralysis may be increased by extrinsic factors such as diet. The incidence of the disease on poultry farms has been greatly reduced by feeding a mixture of equal parts of ferrous sulfate, manganese sulfate, and cobalt sulfate at the rate of 0.02 per cent in the mash plus brewers yeast, 2 per cent in the mash [37, (Sept., 1947): 559-560].

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**Canine Toxoplasmosis.**—A 10-month-old female dog was presented with a history of having been ill for eight days [37, (Sept., 1947): 501-517]. The symptoms were loss of appetite, vomiting, and dyspnea. The temperature was normal. The postmortem examination revealed ulcerations of the gastric mucosa and the ileum. There were miliary lesions in the enlarged mesenteric lymph nodes. The lungs had miliary and nodular lesions resembling tuberculosis. Histologic examination of the diseased tissues revealed innumerable intracellular toxoplasms. The parasites were most numerous in the lesions of the gastrointestinal tract.

### Do Pigs Excrete Germs of Inoculated Culture?

This question was frequently discussed in the literature, and various opinions were expressed. In order to ascertain whether pigs vaccinated simultaneously against erysipelas excrete germs of the inoculated culture, 14 pigs were vaccinated simultaneously and their urine examined three to eight days after vaccination for the presence of *Erysipelothrix rhusiopathiae*. The urine was centrifuged and broth tubes and agar plates were inoculated with the sediment and cultured. Mice were inoculated but no erysipelas germs could be detected. In order to determine whether the erysipelas organisms that were injected at the time of the simultaneous vaccination enter the blood

stream, blood samples were drawn from 6 pigs three to eight days after vaccination and examined for the presence of *E. rhusiopathiae*. In no case could erysipelas germs be isolated. Since it is well known that in erysipelas the causative germs are always excreted in the urine, and since no such germs could be recovered in this experiment, the author concludes that pigs which were vaccinated simultaneously against erysipelas do not excrete germs of the inoculated culture. However, in the case of erysipelas which sometimes develops after vaccination with the living culture, the condition is the same as in natural outbreaks of the disease, and there is no way to distinguish germs of the inoculated culture from those of the activated latent infection.—[A. Hupbauer: *Do Pigs Vaccinated Simultaneously Against Erysipelas Excrete Germs of the Inoculated Culture?* *Veterinarski arhiv*, 17, (1947): 257.]—ERNEST FRELIH.

### A Survey of Literature from Yugoslavia

The following is a survey of the Yugoslav *veterinarski glasnik*. Dr. Ernest Freljh, Albany, N. Y., prepared the abstracts.—The Editors.

**Scabiosan Ointment in the Treatment of Various Skin Diseases of Dogs and Cats.**—The ointment contains:

Calcium carbonate .....	5.0 per cent
Colloid sulfur .....	12.5 per cent
Green soap .....	10.0 per cent
Magnesium hydroxydate .....	20.0 per cent
Distilled water .....	10.0 per cent
Fatty ingredients .....	42.0 per cent
Preservative .....	0.5 per cent

According to E. Lapcevic [10, (1947): 548], various forms of skin disturbances (eczema and dermatitis, including those of demodectic or scabiotic origin) were treated in 36 dogs and 5 cats with satisfactory results. The ointment is nontoxic and nonirritant; it dries, allays pruritus, suppresses the inflammatory condition, and stimulates regeneration. It proved beneficial particularly in the treatment of moist eczemas accompanied by itching.

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**Aluminum Hydroxide Precipitated Vaccine Against Swine Enzoötic Encephalomyelitis.**—In accordance with Traub's formula for the preparation of foot-and-mouth disease vaccine, an aluminum hydroxide precipitated vaccine was prepared from the brain and the spinal cord of infected pigs for the prophylactic treatment of swine against enzoötic encephalomyelitis [I. Zarnic, 11-12, (1947): 600]. When administered subcutaneously or subdurally, the vaccine proved inoffensive to experimental pigs. Nineteen pigs (crossed Yorkshire) were vaccinated; 9 pigs weighing 30 to 40 kg. received one dose of 10 cc. vaccine, and 10 hogs weigh-

ing 40 to 60 kg. received two doses fourteen days apart, the first dose being 5 cc. and the second 10 cc.

The single-injected pigs were inoculated nasally twenty-one days after vaccination with the enzoötic encephalomyelitis virus. The hogs vaccinated twice were inoculated subdurally fifteen days after the second vaccination.

The results of the experiment were: 5 single-injected pigs and 6 hogs vaccinated twice did not show any clinical or thermal reaction, while the other 8 pigs contracted the disease with a prolonged incubation. Eight control pigs developed typical symptoms of enzoötic encephalomyelitis following an incubation period characteristic for this virus.

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#### *Crystal-Violet Vaccine Against Hog Cholera.*

—Yugoslavia is known to be one of the European countries that is heavily infected with hog cholera. Until recently, simultaneous vaccination was the only method used in the immunoprophylaxis. In order to prove the efficiency of the crystal-violet vaccine in swine kept under usual farm conditions, 1,411 pigs owned by small holders were vaccinated in various districts of the country. According to M. Zeljko [10, (1947): 538], the vaccine used was the crystal-violet-glycerol vaccine, and with few exceptions pigs over 2 months of age were treated. The effectiveness of the vaccine has been determined by subsequent history of the herds, rather than by virus injection. From the reports obtained, all vaccinated pigs remained well in spite of the fact that many herds were exposed to the disease during the year. Production of the vaccine on a larger scale, and its use in slightly infected parts of the country, is recommended.

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*Indication and Techniques of Spaying Mares.*—The government regulations in Yugoslavia require strict measures for the eradication of equine trypanosomiasis (dourine). All reacting stallions must be castrated and the sick mares visibly marked with a branded letter "D," thus being excluded from breeding. Civil authorities buy the infected mares from the owners and exterminate them.

In order to prevent huge losses in the horse population, which already was decreased considerably during World War II, the spaying of infected mares was tried as a practical method to prevent the spread of the disease. According to the authors, D. Uzelac, J. Ratkovic, and K. Herman [10, (1947): 545], the results obtained after spaying 35 mares were encouraging: 26 animals recovered with no change of general condition, 8 animals developed increased temperature which disappeared after the administration of sulfanilamide on three consecutive days, and 1 animal died from peritonitis. The operation was performed under epidural anesthesia in standing position. After the manual

evacuation of the rectum, the vulva and vagina were washed and disinfected with a 3 per cent dilution of valvanol. The ovaries were removed by means of an écraseur through an artificial opening on the sidewall of the vagina. If performed aseptically, the animals recover in a few days, and there is not as much danger of septic peritonitis as the literature implies. The authors suggest the use of the operation described, but without ovariectomy, as a method that might prove satisfactory in the diagnosis and treatment of various abdominal disturbances in mares.

#### **BCG in Epidemic of Tuberculosis in a State School**

This report concerns an outbreak of tuberculosis in a girls' school in Denmark where the conditions were those of a well-controlled experiment of BCG vaccination. In February 1942, all of the 333 pupils, ranging in age from 12 to 18 years, were tested and 130 were found to be tuberculin positive. Because there previously had been 3 cases of tuberculosis in the school it was recommended that the 200 tuberculin-negative children be vaccinated with BCG. However, only 144 of the 200 negative children applied for vaccination which was performed in February, 1942. In December, 1942, the pupils were again tested and the 368 children then in the school could be divided into three groups: 105 unvaccinated children were tuberculin negative, 103 were tuberculin positive after the BCG vaccination, and 130 were those originally tuberculin positive. There were no signs of active tuberculosis. In February, 1943, an influenza-like epidemic broke out in the school and the entire personnel were again examined for tuberculosis. It was found that 70 of the 105 unvaccinated children that were previously tuberculin negative had become tuberculin positive. Subsequent examination disclosed that only 2 of the 144 BCG vaccinated children and only 4 of the 133 originally tuberculin-positive children had acquired pulmonary tuberculosis; whereas, 41 of the 105 originally tuberculin negative and not vaccinated now had the disease. To find the source of infection, a thorough examination was made of all the personnel in the school. One teacher with a presumably inactive pulmonary lesion was found. This teacher gave her instruction in the basement which was completely walled by saw bags and used as an air-raid shelter. There was no sunlight or ventilation. All pupils who did not use this room, or who did so with another teacher, escaped the infection. The teacher suspected of being the source of the infection was living with a sister who had a chronic illness with emaciation and cough. Gastric washing from this person revealed acid-fast bacteria on direct examination, and tubercle bacilli were isolated by culture. Gastric was-

ings from the teacher showed no acidfast bacteria on direct examination but culture studies revealed four colonies of tubercle bacilli from a single specimen.

It was learned that of the 105 unvaccinated pupils, 94 were exposed by contact with the teacher. Seventy (74.5%) of the 94 became tuberculin positive and 41 (58.6%) had demonstrable pulmonary tuberculosis. Of the 133 pupils vaccinated with BCG, 106 were exposed and of these only 2 (1.9%) had demonstrable pulmonary tuberculosis. In the group of 133 pupils originally tuberculin positive, 105 were exposed to the teacher but only 4 had demonstrable disease and of these, only 2 (1.95%) were considered to have exogenous infection. Observations continued over a period of three years showed that there was an infection rate of 58.6 per cent among the tuberculin negative, nonvaccinated group, as compared with 1.9 per cent for those given BCG, and 1.9 per cent for those originally tuberculin positive. All groups were exposed to the same source of infection.—[Hyge, Tage V.: *Epidemic of Tuberculosis in a State School with an Observation Period of About Three Years*. *Acta Tuberculosea Scandinavica*, 21, (1947): 57 pages.]—A. G. K.

#### The Hemagglutinative Activity of *Erysipelothrix Rhusiopathiae*

Liquid cultures of one of three strains of *Erysipelothrix rhusiopathiae* tested had the ability to agglutinate chicken-erythrocytes. The agglutination appeared to be specific because it could be inhibited by swine erysipelas antiserum, while other serums did not inhibit the agglutination.—[Z. Dinter: *The Hemagglutinative Activity of Erysipelothrix Rhusiopathiae*. *Tierärztl. Umschau*, (1948): 143.]—A.G.K.

#### The Diagnosis and Control of Infectious Abortion in Cattle

The diagnosis of infectious abortion due to *Trichomonas foetus* infection is dependent on the demonstration of the parasite. In the past, the demonstration of the trichomonads by cultural methods has been almost impossible because of the presence of contaminating bacteria. Pure culture studies are limited by the difficulty of eliminating bacteria from the medium. It was found that the addition of penicillin, 250 units/cc., to heart infusion bouillon containing serum and glucose would inhibit the development of bacteria but would not prevent the growth of *T. foetus*. As much as 1,430 penicillin units/cc. of medium did not inhibit the trichomonads. One strain was carried for 100 transfers in a medium that contained penicillin. The successful cultivation of *T. foetus* allows for fundamental work on the

pathogenesis of the disease.—[Siegrist, J. J.: *The Diagnosis and Control of Infectious Abortion in Cattle*. *Schweiz. Arch. f. Tierheilk.*, 40, (1948): 28-36.]—A.G.K.

### BOOKS AND REPORTS

#### California Report on Foot-and-Mouth Disease

This document was prepared on behalf of the State of California by two members of the state senate, Geo. J. Hatfield and Harold J. Powers, with the technical assistance of Dr. C. U. Duckworth. It deals with the history and development of the foot-and-mouth disease problem in Mexico, including a consideration of livestock sanitary treaties and embargoes designed to protect the United States against importation of disease agents. It also reviews California's own experiences with this disease by way of republishing documents and pictures prepared incident to outbreaks in that state.

On the basis of personal observations made in Mexico during December, 1947, and January, 1948, plus numerous documents and opinions made available to them in this study, the writers have attempted to evaluate the efficiency of operations in the Mexican campaign and to determine the individuals or agencies responsible for alleged maladministration. [Report on Foot and Mouth Disease. Partial report of Senate Interim Committee on Livestock Diseases, State of California. 445 pages. Illustrated exhibits. Public document, California State Senate, 1948.]

#### Advances in Enzymology

To comprehend that medicine is but a superficiality striving to dig itself out of empiricism, one has but to read this book, much of which was written by European authors. Among the titles of its 12 chapters are such headlines as "Permeability of Enzyme Reactions," "Bacterial Luminescence," "Hemo-linked Groups and Mode of Action of Some Hemoproteins," "Oxidation of Organic Sulfur in Animals," "Distribution, Structure, and Properties of Tetrapyrroles," and other lines of thought set apart for the critical investigation of agents and agencies which lie beyond the knowledge employed in the practice of medicine. Here is a wonderful lesson on the ignorance medicine is striving to negotiate in its pursuit of efficiency and happiness. Being Vol. 7 of a series on enzymology, the integer reveals the breadth of the fascinating but incomplete science, as well as its importance in the physiopathology of plants and animals. In short, enzymology is the science that takes man nearest to the mechanism called life. These volumes and the appended references, as much as they dis-

close, are but theses on the eternal determination to solve the basic biologic problem. They belong in the library of the teacher, the scientist, and the inquisitive clinician.—[*Advance in Enzymology*. By F. F. Nord, Editor, 665 pages, 1947, Interscience Publishers, New York, N. Y. Price \$8.75.]

### A Study of Equine Fistulous Withers and Poll Evil

Obviously, the most critical study ever made of these equine maladies was the investigation carried out at Kansas State College which throws some of the voluminous literature on the subject into the *limbus patrum* for reexamination. The pathology of fistulous withers and poll evil has had a romantic history—traumatic, verminous, microbial by turn. To the nineteenth century hippiaters, ill-fitting halters and collars, maladjusted saddles, and collisions with low barn doors and tree limbs took all the blame. With the pyogenesis of Lister superadded, the cause seemed as clear as crystal until the *Onchocercus cervicalis* was found to be a too common inhabitant of the ligamentum nuchae of horses and mules to be kept out of the etiology of these troublesome phlegmons. Onchocerciasis of the withers and poll evil were the names suggested for them. L. Enos Day of the BAI laboratory had some fine specimens of *O. cervicalis* nesting in the neck ligament. Came the realization that the vaguely mentioned bursae functioning at these movable parts were the points of departure. Then, about twenty years ago, came the startling discovery that these tumorous processes were but the equine manifestation of brucellosis. The literature was full of near proofs to that effect. Either *Brucella abortus* or *B. suis* were isolated in a sufficient number of cases, however, to prove a relationship to Brucella infections in farm animals. The authors cite literature as far back as forty years ago to present the developments in their proper order. They report a finding that gives the pathogenesis of fistulous withers and poll evil a new point of departure—a complex infection which includes *Actinomyces bovis* and *B. abortus* and/or *B. suis*. Emphasized is the fact that investigators need not expect to isolate the former in the fluid contents of the bursae or discharges. Being a tissular, not a humoral, organism, it was recovered from the hyperemic areas of the walls of the sac. The "complex theory" of the infection was further supported by the recovery of *Corynebacterium pyogenes* in 5 out of 80 cases critically examined. Summed up, the authors demonstrated experimentally that these diseases are due to the combined action of two specific agents mentioned above.—[*A Study of Equine Fistulous Withers and Poll Evil*. By Leo M.

Roderick, Alice Kimball, and E. R. Frank. *Technical Bulletin 63, Agricultural Experiment Station, Kansas State College, 1947. 20 pages. Illustrated with 4 color plates. Public document. This article (abridged) appeared in the Am. J. Vet. Res., (Jan., 1948): 5-10.*]

### So You're Going to Raise Chickens

This bulletin from the New Mexico experiment station is a handy guide for people who contemplate a chicken-raising venture. It contains advice on breeds, sources and cost of chicks, cost of equipment, markets, and feeds, with special reference to conditions prevailing in New Mexico.—[*So You're Going to Raise Chickens*. By Morris Evans. Bull. 339, New Mexico Agricultural Experiment Station, College Station, N. M. Oct., 1947. 19 pages. Public document.]

### Hotels for Tourists with Dogs

This is a valuable directory for every dog-owning tourist, and it's free for the asking. It lists—alphabetically by states and by communities within each state—hotels and motor courts in 47 states that accommodate guests with dogs. Included are not only stopping places which accept dogs without question, but also those which accept them under stated arrangements.

The data were obtained by two methods: (1) Through the aid of humane groups who gathered first-hand information in their communities and reported their findings on special forms; and (2) by a questionnaire mailed to hotels and motor courts in communities not having an active humane group.—[*Touring with Towser*. Issued as a public service by Gaines Dog Research Center, 250 Park Ave., New York 17. Paper. 40 pages. Apr., 1948. Free.]

*New Milk and Food Publication*.—The International Association of Milk and Food Sanitarians has inaugurated a new publication, *Milk and Food Sanitation*. Temporarily, this new entity will be carried as a section of the *Journal of Milk and Food Technology*, official organ of the Association.

### Corrigendum

In our review of the book, "Index of Diagnosis" (May, p. 403), it was mentioned that Dr. Gerry B. Schnelle had read the proofs. Our attention has been called to this statement, since Dr. Schnelle read proof only for the first edition of this book, and not for the succeeding ones.

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# THE NEWS

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## Executive Board Elections in Districts II and III

Primary elections for nomination of members of the Executive Board in District II (Delaware, District of Columbia, Maryland, New Jersey, and Pennsylvania) and District III (Illinois, Indiana, and Wisconsin) closed on June 26, 1948. Drs. W. A. Young, A. G. Misener and Rudolph Trader served as a board of tellers on June 28 and certified the following candidates:

### District II:

- J. D. Beck, Philadelphia, Pa.
- A. L. Brueckner, College Park, Md.
- E. R. Cushing, Plainfield, N.J.
- J. J. Martin, Jersey City, N.J.
- B. C. Pler, Washington, D.C.
- S. F. Scheidy, Drexel Hill, Pa.

A tie for third, fourth and fifth places made it necessary to list six candidates instead of the usual five.

Dr. Scheidy is the incumbent in District II; his term expires at the conclusion of the annual meeting in San Francisco in August.

### District III:

- J. L. Axby, Indianapolis, Ind.
- L. E. Boley, Urbana, Ill.
- E. M. Lynn, Chicago, Ill.
- O. Norling-Christensen, Wilmette, Ill.
- J. T. Schwab, Madison, Wis.

Dr. Axby is the incumbent in District III, and his term also expires in August.

Election ballots were mailed to members in Districts II and III on June 29, 1948; the polls will close on August 28.

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## Board of Governors Meets in Chicago

The Board of Governors (Executive Board Chairman W. R. Krill, President W. A. Hagan, and President-elect L. M. Hurt) met in Chicago on June 19. Among the items of business were:

1) Received reports of the progress of the Eighty-fifth Annual Meeting in San Francisco, August 16 to 20: program, exhibits, local arrangements, and financial.

2) Discussed the need for and the means whereby encouragement could be given to a National Medical Film Institute. The active sponsoring agent is the Committee on Audio-visual Aids of the Association of American Medical Colleges.

3) Approved a plan whereby members of student chapters of the AVMA may purchase an official DIRECTORY at half price.

4) Heard a report of the activity of the newly formed veterinary advisory committee on Civil Defense Planning, of which Dr. Krill is chairman.

5) Studied a proposed program for reinvestment of a portion of AVMA funds at a higher rate of interest than is being received on U. S. Government bonds.

6) Heard Dr. Wayne Riser propose a plan for more active AVMA participation in a small animal research program.

7) Approved appointment by President Hagan of Dr. R. P. Link as AVMA representative to a conference to discuss and recommend over-all policies to be used in selecting common names for pesticidal agents.

8) Discussed a proposal for an exchange of veterinarians between the AVMA and the Italian National Association of Veterinarians.

9) Recommended attendance of various officers at veterinary gatherings and related meetings from which invitations had been received.

10) Heard a report from the special committee on advertising policy. This committee is making a thorough study of the basis upon which a reasonable and fair advertising policy should be formulated.

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## What to Wear at the San Francisco Convention

"You won't believe it unless you've been here" is the way San Francisco residents describe that city's almost unbelievably cool August weather. It's so cool, in fact, that top-coats are needed at night, and regular-weight suits and dresses can be worn comfortably during the day. The daytime temperature is around 65 degrees, and the nights are cooler than that. "Men here do not wear summer formal outfits," advises Dr. Joseph M. Arburua, general chairman of the local arrangements committee. Tuxedos are worn instead.

Enroute to San Francisco, however, clothing needs will be different, especially for those traveling from far-away places. Summer clothing or sportswear can be used to advantage while traveling to that city, as well as for the return trip along any of the three routes offered in the special AVMA Convention Tour.

## LAST CALL FOR CONVENTION TOUR RESERVATIONS

It is not too late to make reservations for the Convention Tour which will leave Chicago at 6:20 p.m. CST on Aug. 9. The travel agency that is coöperating with the AVMA in arranging this tour has made arrangements to accept reservations up to noon of August 9. If you have misplaced the reservation form that was sent with tour literature early in June to all members living east of the Rockies, phone (Wabash 2140) or telegraph the AVMA office in



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San Francisco at Night — The Oakland Bay Bridge in the background.

Chicago (600 S. Michigan Ave.) to make last-minute reservations. Phone or telegraph requests must be followed up the same day with a telegraph money order amounting to \$25.00 (required deposit) for each person for whom you are making a tour reservation. The order should be made payable to the AVMA. Wire or phone orders must state whether you will start the tour at Chicago or whether you desire to board the convention train at a specified point along the route,\* as well as the type of Pullman sleeping accommodations desired (lower, upper, compartment, drawing room). Such requests also must state which of the following three return routes you wish to take:

- 1) Via Canadian Rockies, returning to Chicago at 3:05 p.m., Thurs., Aug. 26.
- 2) Via Glacier National Park, returning to Chicago at 8:45 a.m., Wed., Aug. 25.
- 3) Via Yellowstone Park, returning to Chicago at 7:50 a.m., Fri., Aug. 27.

\*See the JOURNAL, May, 1948, p. 405, for diagram of the tour route.

### AVMA Research Fellows

This is the second in the series of discussions (see JOURNAL [July, 1948]: 87) of the fellowships operating under the supervision of the Research Council of the AVMA, and a listing, in turn, of the fellows who have completed or are now receiving support from the Research Fund. Dr. L. Meyer Jones, listed in the July issue, was the first to complete his work.

Following is a résumé of the background of Dr. Howard W. Dunne and the work in which he is engaged at Michigan State College as a research fellow.

#### Howard W. Dunne

Howard W. Dunne, born March 19, 1913; D.V.M. (1941) Iowa State College; practiced four months at Chehalis, Wash., and six months at Maquoketa, Iowa; assistant production manager two years, production manager one and one-half years (equine, bovine, canine serums) at the Corn States Serum Co.; AVMA research fellow at Michigan State College (Sept. 1, 1946, probably to July 1, 1949).

#### SUMMARY OF WORK TO DATE

A general study of the etiology and pathology of swine enteritis has been conducted since September, 1946. Experimentation has been concentrated for the most part on the pathologic effects of deficiencies of all B vitamins, particularly deficiencies of niacin and pantothenic acid. The relationship between experimentally produced nutritional enteritis and naturally occurring necrotic enteritis as found in the field is being investigated. The scope of such investigation has included controlled experimental feeding of swine, field observations of naturally occurring cases, and transmission experiments with animals and materials secured from field cases.

Laboratory procedures used in conducting these experiments involved the chemical determinations of urinary excretion of N-methylnicotinamide, the collection of blood data including erythrocyte, leucocyte, and differential cell counts and hemoglobin determinations at spaced intervals during the tests. Macroscopic and microscopic examinations of affected tissues were made upon postmortem.



Dr. Howard W. Dunne

Course work taken in conjunction with the experimental work has included mathematics through calculus and statistics, five terms of advanced physiology, one year each of physics, organic chemistry, physical chemistry, and advanced pathology, as well as one term each of quantitative analysis, biologic chemistry, and hematology.

### AVMA Tour to 14th International Veterinary Congress

As all readers undoubtedly know, the 14th International Veterinary Congress will be held in London in August of next year. The last three international veterinary congresses held in Europe—10th, 1914; 11th, 1930; and 13th, 1938—were attended by considerable numbers of American veterinarians. It is expected that an even greater number will attend the Congress next summer.

The AVMA has organized a European veterinary tour in connection with each of the three congresses mentioned. These tours, which were divided between places of veterinary interest and those of historic, artistic, military, or other interest to visitors to Europe—the "travel features" of the tourist agencies—have been most satisfactory to those participating in them. The expense is less than for independent travel and the inconvenience of hotel

reservations, arranging local transportation and guides to points of interest, train reservations, delays at points of entry, language difficulties, etc., incident to travel in a foreign country, are almost entirely eliminated. At the same time, the opportunities to visit European veterinary colleges and laboratories and to meet European veterinarians are greatly enhanced.

Dr. George H. Hart, dean of the College of Veterinary Medicine, University of California, Davis, Calif., and chairman of the AVMA International Congress Committee, believes it desirable for the Association to organize a tour of Northern and Western Europe for members, their families and friends, who wish to attend the 14th International Veterinary Congress. Therefore, the AVMA has requested Dr. D. M. Campbell of Chicago, who has had much experience with such tours, to organize a tour for the 14th Congress in 1949. Plans, which of course are only tentative as yet, contemplate leaving Detroit at the close of the AVMA meeting in that city next year, and visiting, before and after the Congress, France, Belgium, The Netherlands, Denmark, Sweden, Norway, Scotland and England, and possibly Hanover, Germany, with the tourists reaching their homes by Labor Day.

The dates of the London Congress are Aug. 9-14, 1949; the AVMA convention has, therefore, been set ahead one month to July 11-14.

Inquiries about the tour may be addressed to Dr. D. M. Campbell, 7632 S. Crandon Ave., Chicago 49, Ill., or to the AVMA office.

### Meat Inspection Seminar

The Committee on Food and Milk Hygiene, Dr. H. E. Kingman, Jr., chairman, sponsored a seminar on meat inspection July 13-15, 1948. Invitations were issued to each approved veterinary college and to each new school to send to the seminar the person teaching its course in Meat Inspection.

The program was carefully planned to cover all phases of the problem, not only in lectures but in actual inspection while plants were engaged in the process of converting animals into food for human consumption. The program was as follows:

A review of "Veterinary Activities in Food Inspection," included the following speakers and subjects: Dr. R. C. Klussendorf, assistant executive secretary, AVMA, Chicago, Ill., "American Veterinary Medical Association"; Col. Oness H. Dixon, V.C., Fort Benning, Ga., "Army"; Dr. C. H. Pals, assistant chief, Meat Inspection Division, U. S. BAI, Alexandria, Va., "Federal Meat Inspection"; Dr. P. J. Brandly, chief, Poultry Inspection Section, Inspection and Grading Division, Dairy Branch, Production and Marketing Administration, Washington, D. C., "Poultry Inspection"; and Dr. James H. Steele, chief, Veterinary Public Health Division, U. S. Public Health Service, Atlanta, Ga., "Public Health."

Participants in a round table discussion, "Does the Present Veterinary School Curricu-

lum Qualify the Veterinarian for Food Inspection Work," were Major Philip Carter and Major Mervyn Starnes, Army Veterinary Corps; and Drs. James H. Steele, P. J. Brandly, and L. J. Cook.

Dr. L. B. Jensen, Research Laboratory, Swift and Co., Chicago, Ill.: "Microbiology of Meats."

Dr. L. E. Dack, director, Research Food Foundation, University of Chicago, Ill.: "Food Poisoning."

Dr. J. S. Bengston, U. S. BAI, Elmhurst, Ill.: "Pathologic Conditions as Related to Disposition of Meat and Meat Food Products."

Dr. L. A. Spindler, U. S. Department of Agriculture, Zoology Division, Beltsville, Md.: "Parasitic Conditions in Domestic Animals as They Affect Disposition of Meat and Meat Food Products."

Those in attendance inspected a large beef killing plant, a small beef killing plant, swine slaughtering plant, and a poultry eviscerating plant.

Representatives from approved and new veterinary colleges who attended the Seminar were Drs. Cecil Elder, University of Missouri, Columbia, Mo.; J. H. Sautter, University of Minnesota, St. Paul, Minn.; Lewis H. Moe, Oklahoma A. & M. College, Stillwater, Okla.; L. E. Boley, University of Illinois, Urbana, Ill.; I. A. Merchant, Iowa State College, Ames, Iowa; N. Fish, Ontario Veterinary College, Guelph, Can.; F. P. Jaggi, Texas A. & M. College, College Station, Texas; F. R. Koutz, The Ohio State University, Columbus, Ohio; Clifford W. Barber, University of Georgia, Athens, Ga.; B. J. Killham, Michigan State College, East Lansing, Mich.; Ernest J. Witte, University of Pennsylvania, Philadelphia, Pa.; T. S. Williams, Tuskegee Institute, Tuskegee, Ala.; Peter Olafson, New York State Veterinary College, Cornell University, Ithaca, N.Y.

### STUDENT CHAPTER ACTIVITIES

**ISC Student Chapter of the AVMA.**—During the second term of 1947-1948, the officers of the Iowa State College Chapter of the AVMA were Robert K. Morrison, *president*; William Hunter, *vice-president*; Keith M. Giese, *secretary*; Donald Crawford, *treasurer*; D. Bromwell, *critic*; Stanley King, *president-elect*; Oliver Whitcomb and Walter Campbell, *Cardinal Guild representatives*; Sanford Wilson, Robert Speaker, and Richard Searle, *class representatives*. Dr. Robert Getty, assistant professor, Department of Veterinary Anatomy, was faculty advisor.

At the Feb. 25, 1948, meeting, the films "Valiant Years" and "Gel Foam" were shown, and it was decided to revise the constitution of the ISC Student Chapter.

On April 7, Dr. J. A. Barger, head, Iowa BAI, spoke on "Things That Have Been Done in the Field of Veterinary Medicine."

Mr. Connelly, secretary of the Iowa Horse and Mule Breeders Association presented a film on "Gaits of Horses" at the meeting on

May 12, and the proposed revision of the constitution was discussed.

On May 26, Dr. Campbell, editor of *Veterinary Medicine*, Chicago, Ill., spoke on "Inter-relationships between the Veterinarian, Animals, and Civilization." The following officers were elected at this meeting: R. J. Cowles, *president-elect*; R. Williams, *vice-president*; L. Bunge, *treasurer*; R. Bunge, *secretary*; G. Flater, *critic*; and Dr. John P. Arnold, assistant professor, Veterinary Clinic, *faculty advisor*.

Social activities of the semester included the annual spring dance, participation in the ISC Veisha celebration, and the annual stag picnic.  
s/K. M. GIESE, *Secretary*.

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(Continued from July JOURNAL)

**History of the Colorado Student Chapter of the AVMA.**—The first class in veterinary medicine at Colorado A. & M. College, in framing a constitution for the Junior Chapter, initiated the Honor System, which has proved so successful that it has needed only two amendments during the forty years it has been in use. Under this system it was agreed that there would be no giving or receiving of aid in examinations, or any communication between students concerning any question relating to the examination. Committees of students investigate any infraction of rules of the Honor System Constitution and warn the student on the first offense; second offenders are reported to the dean of the Division of Veterinary Science who alone has authority to administer punishment.

The Junior AVMA sponsors three dances during the year; the last one, which is formal, is in honor of the graduating class and climaxes the year's social activities. In addition, the Chapter also sponsors an annual smoker which is open to the public, and an amateur show.

In 1915 the Chapter established, and for many years maintained, the Veterinary Library through profits from the sale of textbooks. This work is now carried on by the Alpha Psi.

In 1925, by taking a strong stand against an anti-vivisection law, the organization helped to bring about its defeat.

Maintenance of attendance at meetings has never been a problem and attendance has always been high. In 1911, 75 per cent of the veterinary student body were members of the Junior Chapter of the AVMA; in 1925, 85 per cent were members.

The vice-president, secretary, treasurer, and reporter are elected at the beginning of each term; the president is elected for the second quarter following, in order to provide a period of orientation before taking office. All offices are reserved for upperclassmen except that of reporter which may be held by a sophomore.

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**History of the KSC Student Chapter of the AVMA.**—Veterinary students of Kansas State College met Oct. 20, 1906, to organize the Veterinary Medical Association. The Association, predecessor to the Kansas State College Junior

Chapter of the AVMA, was granted a state charter the year it was organized. From the beginning, the purpose of the Association has been technical, social, and literary development.

Every effort has been made to incorporate the work of as many members as possible, to help more members feel that this is truly an organization of all instead of the few. To engender closer relationship between student and faculty, an annual faculty-student smoker is held at the beginning of the school year. That students may know each other better, a little brother-big brother system has been set up within the veterinary school. Throughout the year, a senior, junior, sophomore, and freshman keep each other acquainted with practices of the school, members of the classes, and other matters.

Originally, initiation of freshmen into the Junior Chapter was a combination of hazing and formal ceremony. In 1946, the informal initiation was dropped and now freshmen are introduced to the purposes of the Junior AVMA, and an opportunity is made for new students to meet members of the organization and of the faculty.

From its inception, attempts have been made to have a variety of speakers for the regularly scheduled meetings. Men outstanding in veterinary medicine and related fields have helped students to understand better the conditions under which they must practice upon graduation.

On Nov. 29, 1939, the Veterinary Medical Association of Kansas State College was granted a charter by the AVMA and since then it has functioned as the Kansas State College Junior Chapter of the AVMA.

The one campus activity in which the Junior Chapter participates annually is intramural sports. Each year, teams of students representing the Chapter have played football, basketball, and other sports against competing teams. In 1946, intramural football was won by the Junior AVMA.

In 1941, wives of the student members formed an organization called the Junior AVMA Auxiliary. Membership is limited to wives of Chapter students in good standing. The purpose of the organization is, in part, promotion of the veterinary profession. In 1946, this organization was the first Junior AVMA Auxiliary to be granted a charter by the National AVMA Auxiliary as an associate member. Due to the influx of married veterinary students, there are now 120 members in the Auxiliary.

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## APPLICATIONS

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The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

### First Listing

ARMS, ROBERT C.  
4 Institute Rd., Burlington, Vt.  
D.V.M., Michigan State College, 1946.  
Vouchers: E. K. Sales, C. T. Whitney.

- BURGESS, STOKES H.**  
Box 591, Billings, Mont.  
D.V.M., Chicago Veterinary College, 1915.  
Vouchers: G. M. Wright and A. F. Hayes.
- COTTRELL, GRANT F.**  
812 Portland Ave., Box 97,  
St. Paul Park, Minn.  
D.V.M., Kansas State College, 1933.  
Vouchers: C. E. Burt and I. O. Burlington.
- DE ARAUJO, A.**  
Escola Superior de Agricultura, Areias,  
Estado de Paraiba, Brazil.  
D.V.M., Escola de Agricultura de Vicosá,  
Brazil, 1947.  
Vouchers: A. V. Machado and S. Torres.
- GRAHAM, L. M.**  
Rolle, Iowa.  
D.V.M., Chicago Veterinary College, 1917.  
Vouchers: M. Donahoe and L. W. Feldman.
- LAMBERT, GEORGE**  
Ontario Veterinary College, Guelph,  
Ontario, Can.  
D.V.M., Ontario Veterinary College, 1947.  
Vouchers: F. W. Schofield and W. R. Legrow.
- LEONPACHER, LOUIS**  
Box 888, Lafayette, La.  
D.V.M., University of Munich, 1913.  
Vouchers: H. L. Hillhouse and J. G. Hardenbergh.
- PARSONS, RALPH A.**  
218 Federal Bldg., Box 1086,  
Sacramento, Calif.  
D.V.M., Chicago Veterinary College, 1917.  
Vouchers: W. A. McDonald and  
A. E. Wardlow.
- ROSS, WILLARD J.**  
4527 Produce Plaza, Union Stock Yards,  
Los Angeles, Calif.  
D.V.S., San Francisco Veterinary  
College, 1909.  
Vouchers: C. E. Wicktor and L. M. Hurt.
- SOLTOWSKI, JANINA M.**  
4509 S. Marshfield Ave., Chicago 9, Ill.  
V.S., Academy of Veterinary Medicine,  
Lwow, Poland, 1945.  
Vouchers: J. A. Cameron and F. C. Mau.
- STANFORD, MALCOLM F.**  
R.F.D., No. 2, Fayetteville, Ark.  
D.V.M., Arkansas Veterinary College, 1920.  
Vouchers: J. F. Stanford and W. L. Pelot.
- WIGGINS, HARLAN R.**  
Minden, Nebraska.  
D.V.M., Texas A. & M. College, 1940.  
Vouchers: J. A. Molello and G. A. Acherman.
- Dubrawski, T.**, 212 Walnut St., Aurora, Ill.  
**McKenzie, W.A.**, 755 W. Market, Nappanee, Ind.  
**Mauberret, Jr., Claude**, 4627 Iberville St., New Orleans 19, La.  
**Messer, Ralph L.**, 40 S. 7th St., Kansas City, Kan.  
**Milaknis, Anthony**, 3341 W. Evergreen Ave., Chicago 51, Ill.  
**Nicholson, Wallace R.**, Weyburn, Saskatchewan.  
**Ollgaard, Ove**, Gredstedbro, Denmark.  
**Osterholtz, Wilbert E.**, P.O. Box 365, Las Vegas, Nev.  
**Ross, Alan**, 2027 24th Ave., Oakland 1, Calif.  
**Sommer, Otto W.**, P.O. Box 141, Gonzales, Calif.  
**Souaillard, Pierre P.**, 1309 Columbia, Eugene, Oregon.  
**Ta-Jen, Lul**, c/o The Ta Kwong Ming Theater, Nanning, Kwangsi, China.  
**Turnbull, William**, Dept. of Public Health, Saskatoon, Sask., Canada.  
**Wilson, F. Hugh**, 124 South St., P.O. Box 21, Rochester, Mich.  
**Wingate, James M.**, 2818 22nd Ave. S., Nashville 5, Tenn.
- 1948 Graduate Applicants**  
**First Listing**  
The following are graduates who have recently received their veterinary degrees and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (\*) after the name of a school indicates that all of this year's graduates have made application for membership.
- Alabama Polytechnic Institute**  
**LOCKHART, COY Z.**, D.V.M.  
616 Lee St., Dyersburg, Tenn.  
Vouchers: J. E. Greene and I. S. McAdory.
- Colorado A. & M. College\***  
**ADAMS, CHARLES R.**, D.V.M.  
Wyoming Hereford Ranch, Cheyenne, Wyo.  
Vouchers: H. W. Johnson and L. C. Moss.  
**BEER, WILLIAM L.**, D.V.M.  
Roanoke, Illinois.  
Vouchers: J. Farquharson and H. W. Johnson.  
**BENJAMIN, MAXINE M.**, D.V.M.  
West Rockwell Hall, West Laurel,  
Ft. Collins, Colo.  
Vouchers: J. Farquharson and H. W. Johnson.  
**BENNETT, STEPHEN P.**, D.V.M.  
Southern Dairy; Cross, Trinidad,  
British West Indies.  
Vouchers: J. Farquharson and E. L. Nye.  
**BERGLIND, DOUGLASS V.**, D.V.M.  
7006 Cedar St., Huntington Pk., Calif.  
Vouchers: J. Farquharson and H. W. Johnson.  
**BRADFORD, FRANCIS J.**, D.V.M.  
Fonda, Iowa.  
Vouchers: L. C. Moss and R. O. Zimdahl.
- Second Listing**  
**Barron, Charlie N.**, 104 Davis Street, Bryan, Texas.  
**Buharalliar, Namik**, 208 South Prospect, Champaign, Ill.  
**Christie, Victor V.**, 3901 3rd St., S.W., Calgary, Alberta.  
**Darling, Benjamin G.**, Hooper, Nebraska.  
**Feers, Albert G.**, 2795 Wynwood Lane, Los Angeles 23, Calif.

BULLOCK, ALDEN L., D.V.M.  
Box 1254, Avenal, Calif.  
Vouchers: H. W. Johnson and L. C. Moss.

CHRISTOFFERSON, PAUL V., D.V.M.  
R.F.D., Box 239, Pleasant Grove, Utah.  
Vouchers: J. Farquharson and L. C. Moss.

GRANT, ROGER A., D.V.M.  
R.F.D. 1, Chaumont, New York.  
Vouchers: J. Farquharson and H. W. Johnson.

HARDENBERGH, JAMES G., D.V.M.  
500 Sheridan Rd., Evanston, Ill.  
Vouchers: J. G. Hardenbergh and J. Farquharson.

HINSHAW, ELBERT R., D.V.M.  
969 Regent, Boulder, Colo.  
Vouchers: J. Farquharson and H. W. Johnson.

HINZE, PHILLIP M., D.V.M.  
220 E. Laurel, Ft. Collins, Colo.  
Vouchers: L. C. Moss and R. O. Zimdahl.

IMMENSCHUH, JEAN C., D.V.M.  
2125 Evergreen St., San Diego 6, Calif.  
Vouchers: J. Farquharson and H. W. Johnson.

JOHNSON, GEORGE O., D.V.M.  
701½ S. 16th St., Apt. 4, Omaha, Neb.  
Vouchers: J. Farquharson and H. W. Johnson.

KARRE, DALE L., D.V.M.  
Scotia, Nebraska.  
Vouchers: J. Farquharson and R. Jensen.

KIRK, DONALD R., D.V.M.  
212 West Lake, Ft. Collins, Colo.  
Vouchers: J. Farquharson and R. F. Bourne.

LUMLEY, JR., CHARLES S., D.V.M.  
Buhl, Idaho.  
Vouchers: R. O. Zimdahl and H. W. Johnson.

McLELLAN, RICHARD A., D.V.M.  
5567 Mayberry St., Omaha, Neb.  
Vouchers: J. Farquharson and R. O. Zimdahl.

MENINGER, TILDIE A., D.V.M.  
1818 W. 50 Terrace, Kansas City, Mo.  
Vouchers: J. Farquharson and H. W. Johnson.

MENTER, JOHN G., D.V.M.  
P.O. Box 14, Los Banos, Calif.  
Vouchers: J. Farquharson and H. W. Johnson.

MILLER, LYLE K., D.V.M.  
Box 48, Wood St., Harmony, Pa.  
Vouchers: H. W. Johnson and L. C. Moss.

MINAR, JACKSON, D.V.M.  
2250 S. 12th St., Salem, Oregon.  
Vouchers: J. Farquharson and L. C. Moss.

MOFFITT, WALTER J., D.V.M.  
4483 42nd St., San Diego 5, Calif.  
Vouchers: H. W. Johnson and L. C. Moss.

MUTZ, VIRGINIA F., D.V.M.  
Eaglenest, N. Mex.  
Vouchers: R. F. Bourne and H. W. Johnson.

PATRIDGE, PAUL D., D.V.M.  
1123 12th St., Golden, Colo.  
Vouchers: J. Farquharson and H. W. Johnson.

POMEROY, HAROLD E., D.V.M.  
185 East 8th St., St. Paul, Minn.  
Vouchers: B. A. Pomeroy and J. Farquharson.

REID, GEORGE R., D.V.M.  
832 Washington, Albany, Ore.  
Vouchers: G. F. Reid and J. Farquharson.

SEEMANN, CARL W., D.V.M.  
Gaylord, Minnesota.  
Vouchers: R. O. Zimdahl and L. C. Moss.

SHIDELER, ROBERT K., D.V.M.  
3007 East Main, Danville, Ill.  
Vouchers: J. Farquharson and H. W. Johnson.

TANGEMAN, RICHARD B., D.V.M.  
Box 266, San Dimas, Calif.  
Vouchers: J. Farquharson and R. F. Bourne.

WINN, JOHN F., D.V.M.  
626 Whedbee, Ft. Collins, Colo.  
Vouchers: H. W. Johnson and R. O. Zimdahl.

WODARS, VELMA F., D.V.M.  
635 North Alisos, Santa Barbara, Calif.  
Vouchers: J. G. Hardenbergh and R. C. Klussendorf.

### University of Pennsylvania

SMITH, MAURICE J., V.M.D.  
2015 Welsh Rd., Bustleton, Phila., Pa.  
Vouchers: R. S. Edmonds and J. J. Cunningham.

### University of the Philippines

SOLIS, ANTONIO A., D.V.M.  
Bukidnon National Agricultural School,  
Musuan, Bukidnon, P.I.  
Vouchers: J. A. Solis and J. B. Aranez.

### Texas A. & M. College

BUCK, LOUIS E., D.V.M.  
722 S. Sequin St., New Braunfels, Texas.  
Vouchers: W. W. Armistead and A. A. Lenert.

GORE, HAROLD L., D.V.M.  
Box 675, Clermont, Fla.  
Vouchers: J. H. Milliff and R. D. Turk.

HORNICKEL, EDWARD P., D.V.M.  
Office of State Veterinarian,  
War Memorial Bldg., Little Rock, Ark.  
Vouchers: A. A. Lenert and W. W. Armistead.

HUMBLE, PIERCE A., D.V.M.  
Rt. 1, Box 185, Belen, N. Mex.  
Vouchers: R. D. Turk and A. A. Lenert.

JONES, HUDSON, D.V.M.  
12814 Market Street Road, Houston 15, Texas.  
Vouchers: P. W. Burns and W. L. Gates.

LOWE, MAX W., D.V.M.  
R.F.D. 2, Clay City, Indiana.  
Vouchers: R. V. Johnston and V. B. Robinson.

ROSSER, BILLY W., D.V.M.  
1533 North Grand, Enid, Oklahoma.  
Vouchers: A. A. Lenert and R. P. Marsteller.

TRAHAN, WILLIE L., D.V.M.  
Box 607, Schulenburg, Texas.  
Vouchers: H. T. Earron and V. B. Robinson.

### Second Listing

#### University of Pennsylvania

RIVERA-ANAYA, JOSE D., D.V.M., Uruguay Street  
No. 112, Stop 28, Hato Rey, Puerto Rico.

#### Texas A. & M. College

CITTADINO, JOSEPH F., D.V.M., Box 2624, College  
Station Texas.

HANCOCK, WILLIAM B., D.V.M., 2832 Avenue  
"G," Fort Worth, Texas.

## COMMENCEMENT

### Colorado A. & M. College

At the sixty-fifth annual commencement exercises of the Colorado A. & M. College, Fort Collins, on June 18, 1948, the following candidates were presented for the D.V.M. degree.

Charles R. Adams  
William L. Beer  
Maxine M. Bennett  
Stephen P. Bennett  
Douglass V. Berglind  
Francis J. Bradford

Alden L. Bullock  
P. V. Christofferson  
Roger A. Grant  
James G. Hardenbergh  
E. Roy Hinshaw  
Phillip M. Hinze

Jean C. Immenschuh  
George O. Johnson  
Dale Lewis Karre  
Donald Roy Kirk  
Charles S. Lumley  
Richard A. McLellan  
Tildie Ann Meininger  
John G. Menter  
Lyle K. Miller  
Jackson Minar

Walter J. Moffitt  
Virginia F. Mutz  
Paul D. Pattridge  
Harold E. Pomeroy  
George R. Reid  
Carl W. Seemann  
Robert K. Shideler  
Richard B. Tangeman  
John F. Winn  
Velma F. Wodars

Those graduating with distinction were Charles R. Adams, William L. Beer, Maxine M. Bennett, Roger A. Grant, and James G. Hardenbergh. William L. Beer was the high man in point of scholarship for the division.

### Graduating Class, Division of Veterinary Medicine, Colorado A. & M. College



Top row (left to right)—Roger A. Grant, Jackson Minar, Tildie Ann Meininger, Charles S. Lumley, Dale L. Karre, Charles R. Adams, Jean C. Immenschuh, Lyle K. Miller, Walter J. Moffitt.

Second row—Alden L. Bullock, Richard B. Tangeman, E. Roy Hinshaw, Stephen P. Bennett, Francis J. Bradford, Richard A. McLellan, James G. Hardenbergh, George R. Reid.

Third row—Paul V. Christofferson, Maxine Benjamin, Paul D. Pattridge, Donald R. Kirk, Velma F. Wodars, John G. Menter.

Fourth row—John F. Winn, Phillip M. Hinze, Carl W. Seemann, George O. Johnson, Virginia Mutz, Harold E. Pomeroy, William L. Beer, Robert K. Shideler, and Douglass Berglind.

## U. S. GOVERNMENT

### Regional Brucellosis Conference

Representatives of livestock breeders' organizations, state regulatory officials, extension workers, public health officials, practicing veterinarians, and related groups were invited to attend a regional brucellosis conference sponsored by the Bureau of Animal Industry at Chicago on June 10 and 11, 1948.

The first day was devoted to a presentation of the problems which face a brucellosis eradication program. Breeders, feeders, practicing veterinarians, legislators, extension workers, state regulatory officials, and BAI veterinarians spoke to the conference, and were offered an opportunity to discuss the remarks of other speakers.

At the end of the day a group of committees was appointed. These met during the evening, and then formulated reports which were submitted to the conference for discussion on the second day.

The conference agreed on a number of points, chief among which are the following:

- 1) The objective of the brucellosis program is eradication of the disease.
- 2) This can best be accomplished through an intensive educational program waged through a National Brucellosis Committee.
- 3) All interested parties must learn and believe and tell the same story in order to reduce and eliminate confusion.
- 4) The Recommendations of the United States Livestock Sanitary Association for Brucellosis Eradication in Domestic Animals provides the basis for such agreement. With minor modifications to suit the needs of individual herds it can work everywhere.
- 5) The private practitioner of veterinary medicine is the key figure in a brucellosis eradication program. With his support it succeeds, without his support it fails.
- 6) A blood testing program protects the 85 per cent of the herds that are clean. It also protects infected herds in which the infection is not spreading rapidly. Of all infected herds, 18 per cent were free from infection following a single test and removal of reactors.
- 7) Vaccination is an adjunct to, but not a substitute for, a program of eradication by test and segregation or removal or slaughter. Adult vaccination, when used, should be considered a temporary means of reducing active spread—it should never be considered a part of a permanent eradication program.
- 8) The program must proceed at a more rapid rate than in the past. Failure to do so means no more than holding the line, and that view is an optimistic one.
- 9) Regulations governing the movement of livestock, intrastate and interstate, should be much more uniform than they are. Problems in brucellosis control vary from state to state, but not as widely as the regulations would seem to indicate. This applies especially to animals vaccinated as calves and carrying a persistent vaccinal titer.

10) Lay assistants may be used under some conditions. Chiefly, these appear when the local practicing veterinarian is not actively supporting the brucellosis eradication program in his daily contacts with his clients and by active participation in the work. Lay assistants should be used to permit the veterinarians to see more herds, do more work, and help more herd owners in trouble. They can not be used to the advantage of the livestock industry when they reduce the number of herds and herd owners directly served by veterinarians.

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**Change in Financing the Meat Inspection Service.**—An act relating to the Meat Inspection Service of the Department of Agriculture approved June 5, 1948, provides "That the cost of inspection rendered on and after July 1, 1948, under the requirements of laws relating to Federal inspection of meat and meat food products shall be borne by the United States except the cost of overtime pursuant to the Act of July 24, 1919 (7 U.S.C. 394)."

Beginning July 1, 1948, recipients of meat inspection service will not be charged for services furnished to them during regular hours. There will continue to be a charge for services furnished on Saturdays, Sundays, and holidays, and for more than eight hours of any day including Monday through Friday.

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**Measures Taken to Combat Foot-and-Mouth Disease.**—A note from the American Legation in Dublin, Ireland, to the Secretary of State, Washington, D. C., says:

The Irish method of eradication of foot-and-mouth disease is to slaughter the animals and bury them. Preventative measures, according to the veterinary section of the Department of Agriculture, are concerned with the few live animals which are imported from Great Britain only. They are quarantined three weeks before shipment in an Irish Government quarantine station in England and are observed for seven to fourteen days after arrival here. Special precautions, such as disinfection and isolation, are observed during transit. Despite the fact that there have been no recent outbreaks of the disease in Great Britain these precautions are always taken.

The legation feels that the assurance given by responsible officials that there is no foot-and-mouth disease in Ireland should be accepted. The country is small and the cattle and dairy business is an extremely important segment of the national economy. With the acute political awareness of the Irish farmer, it would be impossible to hide a situation such as an outbreak of foot-and-mouth disease.

As for rinderpest, since the last outbreak was in 1866 the matter has not been discussed recently. However, there is no reason to believe the situation to be other than indicated by Government officials.

• • •  
**BCG Vaccination.**—Since the conference on BCG vaccination in Washington in September, 1946, nation-wide interest in this immunization procedure has grown to an unprecedented level of intensity, so great indeed (*Pub. Health*

Rep. May 7, 1948) that demands for additional information came from every quarter. A second conference was, therefore, held in New York City March 8, 1948, which was attended by the same group that formulated the original policy of the U.S. Public Health Service. Here, it was recommended that the entire program be continued; the limits thrown around the use of BCG would appear to be wholly sound, i.e., the vaccine should be used under appropriate safeguards, because knowledge regarding immunity against tuberculosis is still incomplete. The results of careful studies, thus far, have shown that BCG is harmless, but unanimity of opinion as to its over-all value is lacking. Though individual resistance is increased, the duration of the protection bestowed remains unknown. Moreover, it is obvious that vaccination should not be considered a substitute for the sanito-hygienic programs now in operation.—Abstract from an editorial by Francis J. Weber, chief, Tuberculosis Control Division, U.S. Public Health Service.

## AMONG THE STATES AND PROVINCES

### Arkansas

**State Association.**—The Arkansas Veterinary Medical Association met in Hot Springs on March 27, 1948, with 11 veterinarians and their wives in attendance. After the motion picture "Valiant Years" was shown, Major and Mrs. W. E. Lord entertained the group in their home.

Sixteen veterinarians and their wives attended the quarterly meeting of the Association on May 6 at Jonesboro. Dr. A. H. Quin, Jensen-Salsbery Laboratories, spoke on "Things New in Veterinary Medicine," after which the group adjourned to Drs. Johnson and Pulliam's modern clinic for a demonstration of a casting harness and a dog drying machine. Dr. C. T. Mason of Little Rock also demonstrated the Mason metacarpal splint.

The ladies enjoyed the banquet at the Hotel Nobel with their husbands.

s/T. D. HENDRICKSON, *Secretary*.

### California

**State Association Officers.**—Officers elected at the annual convention of the California State Veterinary Medical Association in San Luis Obispo in June are Drs. S. T. Michael, San Francisco, *president*; F. P. Wilcox, Los Angeles, *first vice-president*; Floyd H. White, San Rafael, *second vice-president*; E. F. Sheffield, San Diego, *third vice-president*; Oscar J. Kron, San Francisco, *treasurer*; and Mr. Charles S. Travers, *executive secretary*.

s/CHARLES S. TRAVERS, *Executive Secretary*.

• • •

**Dr. Hart Named Dean of New School.**—Dr. George H. Hart [UP '03], for twenty-two years head of the Division of Animal Husbandry, University of California, College of Agriculture,

has been named dean of the new School of Veterinary Medicine. The announcement was made by Dr. C. B. Hutchison, vice-president of the University and dean of the College of Agriculture.

Dr. Hart succeeds Dr. C. M. Haring, who for more than 30 years was head of the Division of Veterinary Science on the Berkeley Campus, and last year was named dean of the School of Veterinary Medicine. Dr. Haring has retired as professor emeritus, after serving the University of California for forty-four years.



Dr. George H. Hart

The new School of Veterinary Medicine will be opened for students this fall, when a class of forty will be admitted. With the completion of the building program, the classes will be enlarged.

• • •

**Dr. Hughes to Head Animal Husbandry Division.**—Dr. Elmer H. Hughes, professor of animal husbandry in the University of California, has been named head of that division in the College of Agriculture, succeeding Dr. G. H. Hart, who becomes dean of the New School of Veterinary Medicine on the Davis campus. Dr. Hughes came to the Davis campus of the University of California in 1920 to take charge of the swine work in the division of animal husbandry.

### District of Columbia

**District of Columbia Association.**—The third regular meeting of the District of Columbia Veterinary Medical Association was held June 22, 1948, in the Pan American Room of the Mayflower Hotel. Dr. A. E. Wight, retired chief of the Tuberculosis Eradication Division, BAL

spoke on "The Development of Veterinary Medicine as I Have Seen It," as an introduction to the motion picture "Valiant Years," provided by Associated Serum Producers, Inc.

The motion picture, "The Story of Phenothiazine," provided by E. I. du Pont de Nemours and Co., was also shown.

s/R. T. HABERMANN, *Secretary*.

## Georgia

**Annual Meeting.**—The Georgia Veterinary Medical Association held its forty-second annual meeting on July 12-13, 1948, at the Ralston Hotel in Columbus. The program follows:

Dr. L. E. Starr, public health veterinarian, Atlanta: "Laws Pertaining to the Control of Contagious and Infectious Diseases that are Transmissible Directly from Animals to Man." Drs. E. E. Chambers, Rossville, and Joe B. Crane, Valdosta, participated in a discussion of Dr. Starr's paper.

Dr. N. D. Crandall, associate professor of surgery and medicine, Auburn, Ala.: "Modern Therapeutics."

Dr. W. M. Coffee, La Center, Ky.: "Swine Practice." Drs. R. Houston, Blakely; J. R. Clanton, Thomasville; and T. C. Ross, McRae, participated in a discussion of this subject.

Dr. W. L. Sipple, head, Animal Disease Department, Georgia Coastal Plains Experiment Station, Tifton: "Reports on Animal Research."

Col. Frank M. Lee, station veterinarian, Fort Benning: "Motion Pictures and Dairy Hygiene in the U. S. Army."

Dr. L. A. Mosher, Atlanta: "Comments on the Proposed Practice Act."

Dr. W. M. Coffee, La Center, Ky.: "Practice Building and Business Management."

Dr. T. J. Jones, dean, School of Veterinary Medicine, University of Georgia, Athens: "A Progress Report on the Veterinary School."

Dr. E. A. Davis, Columbus: "Diseases of Young Puppies and their Hospital Problems." Drs. J. W. Thome, Atlanta, and T. J. Riddle, Marietta, participated in a discussion of this subject.

Dr. M. K. Heath, Birmingham, Ala.: "Feline Practice."

Dr. B. F. Mood, Savannah: "Practical Points on Small Animal Surgery."

The ladies enjoyed the banquet with their husbands.

s/J. M. SUTTON, *Secretary*.

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**Conference on Anaplasmosis.**—Eleven states were represented at a Regional Conference on Anaplasmosis and Internal Parasites which was held at the Piedmont Hotel, Atlanta, Ga., on May 26-27, 1948. The Zoological Division of the BAI, the Division of Insects Affecting Man and Animals of the Bureau of Entomology and Quarantine, and the Animal Disease Research Laboratory were also represented at this meeting. Master projects were prepared for regional research on anaplasmosis and internal parasites of food producing animals, with those in attendance devoting one day to each condition.

Dr. H. Schmidt, College Station, Texas, was appointed chairman of the Committee on Anaplasmosis, with Dr. D. A. Sanders, Gainesville, Fla., secretary. President of the Committee on Internal Parasites is Dr. L. E. Swanson, Gainesville, Fla.; the secretary of this Committee is Dr. A. C. Todd (Ph. D.), Lexington, Ky.

s/A. H. GROTH, *Director*  
*Regional Laboratory*.

## Illinois

**Mississippi Valley Association.**—The Mississippi Valley Veterinary Medical Association held its annual picnic July 11, in Lincoln Park, Galesburg, Ill.

Dr. Robert Kirkpatrick, Galesburg, Ill., has been appointed to fill the unexpired term of secretary of the Association. This position was vacated by the resignation of Dr. Ray Hornbaker.

s/W. J. ANGERER, *President*.

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**Central Illinois Association.**—The Central Illinois Veterinary Medical Association met at the Elks Club at Springfield on June 10. Speaker of the evening was Dr. P. J. Meginnis, Cicero, who spoke on "Modern Horse Practice." The ladies enjoyed a banquet with their husbands.

s/C. D. VAN HOUWELING.

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**Public Relation Activities.**—The Executive Board of the Illinois State Veterinary Medical Association has authorized Secretary A. G. Misener to distribute to all members of the Association, to all the farm advisers in the state, and to the extension directors of the University of Illinois reprints of Dr. W. A. Hagan's article, "The County Agent and the Practicing Veterinarian" (see JOURNAL, February, 1948, pp. 95-98). This action was taken by the State Association as a supplement to the activity of the Public Relations Committee of the AVMA in cooperation with the National Association of County Agricultural Agents.

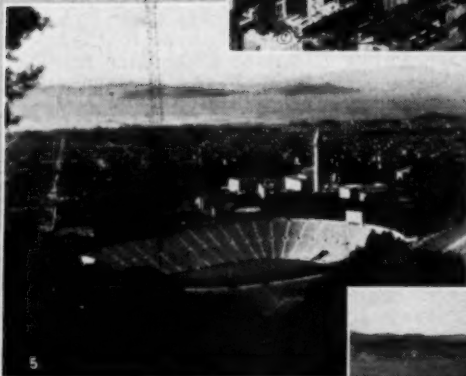
The Public Relations Committee of the State Association and the public relations representatives of the district organizations in the State of Illinois met with Mr. Lyman Peck in May. Mr. Peck is chairman of the Public Relations Committee of the Illinois Feed Association.

s/C. D. VAN HOUWELING, *Director*  
*Veterinary Medical Relations*.

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**More Poultry Inspectors Needed.**—The veterinary inspection of poultry is coming into more general use as the advantages of such inspection are more widely appreciated. The demand for more inspected poultry meat is reflected in a call for poultry inspectors by the dressing plants. At the present time, the demand is growing at a rapid rate, and several positions are available. These should be filled in the near future if the service is to continue to expand.

Appointments in the Poultry Inspection Service of the Production and Marketing Administration are being made without a written ex-



Places of interest in and around San Francisco, the site of the AVMA Eighty-Fifth Annual Meeting.

amination. The entrance salary is \$3,397.20 per annum, based on a forty-hour, five-day week. There is extra compensation for ordered overtime. Opportunities for advancement are excellent. Interested veterinarians are urged to communicate with Dr. Wm. S. Buchanan, Room 910, U. S. Custom House, 610 South Canal St., Chicago, Ill.; or to phone him at Harrison 6910.

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**Dr. Van Houweling Speaker at Feed Club.**—Dr. C. D. Van Houweling spoke on "Relations of the Feed Salesmen and The Practicing Veterinarian" before the Ogle County Feed Club, May 28, in Mount Morris. The film "Valiant Years" was also shown at this meeting. The Ogle County Feed Club is one of three county feed organizations in the state which are being organized by the Illinois Feed Association.

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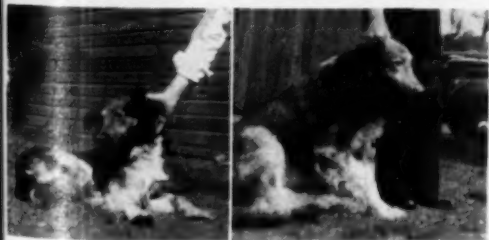
**AMA Honors Distinguished Chicago Sanitarian.**—The 1948 session of the American Medical Association, which was held at the Palmer House the third week of June, elected Dr. Ernest E. Irons, secretary of the Chicago Municipal Tuberculosis Sanitarium, to the office of president-elect. Dr. Irons is 71 years old and has been an active participant in the medical affairs of the state since 1903. He will be installed as president at the Atlantic City session in 1949.

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**Swine Brucellosis.**—The time to start controlling swine brucellosis is before the disease makes its appearance, says E. A. Woelffer, Illinois College of Veterinary Medicine (*Farm News*, May 10, 1948). Keep additions to herds under quarantine until blood tests prove hogs to be healthy, and for the cattle's sake keep them isolated especially in farrowing time. Moreover, there is the family's health to consider, undulant fever in man is spread as often by infected swine as by infected cows.

#### Iowa

**Rabies in a Dog.**—Relative to the articles on rabies in the May issue of the JOURNAL, these pictures show a dog in the first stages of rabies. The animal was later destroyed. A horse and another dog were affected at about the same time in the vicinity. Emulsion of the horse's



brain, injected into rats at the Iowa State University, produced rabies.

s/W. S. O'BRIEN, D.V.M.  
Ryan, Iowa

**Southeastern Association.**—Thirty-five veterinarians, representing 12 counties, attended the dinner meeting of the Southeastern Iowa Veterinary Medical Association on June 1. Dr. E. R. Frank, Kansas State College, Manhattan, showed colored motion pictures of operative procedures on bovine and equine subjects, and Dr. C. E. Hunt, Mt. Pleasant, led a discussion on the subject. Drs. H. W. Tyner, New London, and J. H. Krichel, Keokuk, were the other members of the discussion group.

s/M. R. BEEMER, Secretary.

#### Kansas

**Dean R. R. Dykstra Retires.**—Dean Ralph R. Dykstra retired as head of the School of



Dr. R. R. Dykstra

Veterinary Medicine at Kansas State College on July 1, 1948, after serving in that position for more than thirty-one years. Dr. Dykstra graduated from Iowa State College in 1905 and was on the veterinary faculty there from 1905 until he came to Kansas State College in 1911 as an assistant professor of Veterinary Surgery. In 1919, the Veterinary Department was made a separate division and Dr. Dykstra was appointed as its first dean.

Dr. Dykstra was president of the Kansas Veterinary Medical Association in 1917 and of the AVMA in 1932. He is also a member of the U. S. Livestock Sanitary Association, the American Research Workers in Animal Diseases, and an honorary member of the

Nebraska, Iowa, and Eastern Iowa Veterinary Medical Associations.

Dr. Dykstra will remain with the Veterinary School as professor of Surgery and Medicine.

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**School of Veterinary Medicine has New Dean.**—Dr. E. E. Leasure became dean of the School of Veterinary Medicine, Kansas State College, on July 1, 1948.

Dr. Leasure was awarded the D.V.M. degree from K.S.C. in 1923, and the M.S. degree in 1930. Shortly after graduation, he joined the



Dr. E. E. Leasure

veterinary faculty in the Department of Pathology and was later transferred to the Department of Physiology. He became head of the Department of Physiology in 1944. In addition, he has had extensive experience in the field of veterinary practice and brings with him knowledge of the conditions under which a veterinary practitioner must practice, as well as the needs of the livestock industry and the public health responsibilities of the veterinarian.

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**Hornfly Control.**—Kiowa County will be the first county or district in the U.S.A. to complete a program of hornfly control. The U.S. Bureau of Entomology, Kansas State College, and the National Livestock Loss Prevention Board, livestock commissioner, and the state veterinarian have cooperated in the spraying of 25,000 cattle, barns, sheds, dog houses, grain bins, garbage cans, city dumps, and other places. Animals were sprayed with  $\frac{1}{2}$  of 1 per cent DDT suspension, and nonliving objects with 5 per cent.—*Ray L. Cuff.*

## Maryland

**State Association.**—The annual meeting of the Maryland State Veterinary Medical Association was held at Ocean City on June 25-26,

1948. The following program was presented:

Dr. Gordon M. Cairns, Department of Dairy Husbandry, University of Maryland, College Park: "New Developments in Dairy Cattle Nutrition."

Dr. Robert E. Swope, Livestock Sanitary Service Laboratory, College Park: "Research on Brucellosis."

Dr. Mark Allam, Department of Veterinary Surgery, University of Pennsylvania, School of Veterinary Medicine, Philadelphia: "Perineal Herniorrhaphy," and "Surgical Diseases of the Vagina in Dogs."

Dr. W. A. Hagan, dean, New York State Veterinary School, Cornell University, and president of the AVMA, Ithaca: "John's Disease," and "The AVMA."

Dr. Henry Craig, Department of Veterinary Physiology, University of Maryland, College Park: "Milk Fever and Acetonemia."

Dr. A. L. Brueckner, director, Livestock Sanitary Service, College Park: "Huddleson's M Vaccine."

Dr. M. R. Clarkson, U. S. BAI, Washington, D. C.: "Foot-and-Mouth Disease in Mexico."

Dr. John Fowble, Timonium: "Practitioner Treatment of Foot, Rot and Fistula of the Withers."

Dr. Hulbert Young, Owings Mills, was toastmaster at the banquet and Dr. H. W. Byrd, president, University of Maryland, was guest speaker at the banquet.

S/J. WALTER HASTINGS, Sec.  
Secretary

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**Education Leader to Receive Remington Medal.**—Dr. Andrew G. DuMez (Ph.D.) of Baltimore, secretary of the American Council of Pharmaceutical Education and dean of the University of Maryland School of Pharmacy has been named the twenty-sixth Remington Medalist. In announcing his selection, the Committee on Award indicated that "his general prominence in the fields of education and research qualify him as a recipient of the medal. The award is made by the New York Branch of the American Pharmaceutical Association, and the presentation ceremonies are expected to be held in New York City this fall.

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**Health Certificates for Race Horses.**—A horse that was in the New England area during 1947 is admitted to the race tracks under the supervision of the Racing Commission, unless such horse has been proved free of infectious anemia by blood test conducted under the supervision of a recognized state authority. The justification is the serious outbreak of infectious anemia among the New England track last year. By far the wisest regulation ever enforced in the race-track circle is one requiring, under heavy penalty, that trainers and veterinarians shall report to the track superintendent any abnormal rise of temperature in a horse brought to, or stabled at, a race track under the Commission's jurisdiction.

## Massachusetts

**"The County Agent and the Practicing Veterinarian."**—The director of extension of the Department of Veterinary Science, University of Massachusetts, Amherst, has ordered reprints of Dr. W. A. Hagan's article, "The County Agent and the Practicing Veterinarian" (see JOURNAL, February, 1948, pp. 95-98) for distribution among county extension workers.

S/JOHN B. LENTZ, *head,*  
*Department of Veterinary Science.*

## Michigan

**Western Association.**—Approximately 70 veterinarians and their wives attended the meeting of the Western Michigan Veterinary Medical Association at the Warm Friend Tavern, Holland, on May 27. The motion picture "Valiant Years" was shown and a series of interpretative readings was given by Professor Avison of Hope College.

S/FRANK THORP, JR., *Resident Secretary.*

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**Michigan-Ohio Association.**—The Michigan-Ohio Veterinary Medical Association held its annual meeting on June 3 at the 4-H Building on the fairgrounds at Hillsdale. The day was given over to a very well arranged clinic. A business session followed.

S/FRANK THORP, JR., *Resident Secretary.*

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**Heads Department of Pathology.**—Dr. R. A. Runnells, who has been professor and head of the Department of Veterinary Anatomy at Michigan State College, has been transferred to the Department of Pathology, where he became professor and head on July 1, 1948. He succeeds Dr. E. T. Hallman, who is on a leave of absence for one year before retirement.

Dr. Runnells was awarded the D.V.M. degree at M.S.C. in 1916, and the M.S. degree at the University of Michigan in 1930. He served as associate professor of animal pathology at M.S.C. from 1919 to 1924, when he went to the experiment station at Virginia Polytechnic Institute as associate animal pathologist. In 1930, Dr. Runnells became associate professor of animal pathology at Iowa State College, and remained there until 1943 when he returned to his *alma mater* to assume the position which he has just vacated.

In addition to his teaching and administrative duties, Dr. Runnells has written and edited a text "Animal Pathology," which is widely used by students in veterinary medicine, and is universally accepted as authoritative. It has been so popular that the first edition, which appeared in 1938, was promptly sold out. The second, third, and fourth editions appeared in 1941, 1944, and 1946 respectively.

Dr. Runnells has been particularly interested in the pathology of *Brucella abortus* infections of the bovine udder, pullorum disease in barnyard fowls, the cutaneous lesions of tuberculosis in cattle, and the tumors of domestic animals.

**Award Presented to Dr. Huddleson.**—Dr. I. Forest Huddleson, professor of bacteriology, School of Veterinary Medicine, Michigan State College, and a recognized authority on the



I. Forest Huddleson

treatment of undulant fever, received the Society of Illinois Bacteriologists' first annual award for outstanding contributions to the science of bacteriology.

The award was presented to Dr. Huddleson by J. H. Glynn, chairman of the Society's award committee, at a dinner in the Museum of Science and Industry in Jackson Park in Chicago.

In 1940, Dr. Huddleson received the AVMA Twelfth International Veterinary Congress Award, and in 1944, he was honored with the Borden award of the AVMA.

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**Promoted to Department Head.**—Dr. B. V. Alfredson, professor of physiology and pharmacology at Michigan State College, has been appointed chairman of the Department, to succeed Dr. B. B. Roseboom.

A graduate of the School of Veterinary Medicine at M.S.C. in 1931, Dr. Alfredson was awarded the M.S. degree at the same school in 1940. He accepted a position in the Department of Physiology and Pharmacology in 1935, and has progressed through the several stages to his present position as head of the Department.

Dr. Alfredson has been deeply interested in bovine electrocardiography, and in the pharmacology of the barbiturates used in veterinary clinical medicine.

## Missouri

**Midwest Veterinary Conference.**—Sponsored by the Kansas and Missouri Veterinary Medical Associations, the Midwest Veterinary Conference completed a successful three-day program, June 29-July 1, 1948, at Kansas City. Sessions and exhibits were housed in the Municipal Auditorium. The registration totaled about 700, of whom about 500 were veterinarians and the

remainder were wives, guests, and exhibitor representatives.

One of the outstanding features of the program was a well-illustrated lecture, "Men and Soils," by Professor W. A. Albrecht, head of the Department of Soils, University of Missouri. Professor Albrecht stressed the relationship of soil types, fertility, and rainfall to grass, forage, and crop production and their effects upon animal and human populations. Other subjects and speakers included:

Dr. Robert Graham, dean, College of Veterinary Medicine, University of Illinois, Urbana: "Bovine Leptospirosis as a Newly-Occurring Contagion of Midwest Cattle."

Dr. D. A. Smith, in charge, Small Animal Clinic, The Iowa State College, Ames: "Canine Leptospirosis."

Mr. Ray Cuff, livestock commissioner, Kansas City Stockyards and National Livestock Loss Prevention Board: "Better Livestock" (a colored motion picture).

Dr. Jerry Sotola, assistant director, Livestock Division, Armour and Co., Chicago, Ill.: "Research Achievements of Interest to the Veterinary Profession."

Dr. Jesse Sampson, College of Veterinary Medicine, University of Illinois, Urbana: "The Present Status of our Knowledge of Acetoneuria of Ruminants."

Dr. Louis Leonpacher, Lafayette, La.: "The Practitioner's Approach and Handling of the Contagious Diseases of Animals."

Dr. John C. Cady, Arlington, Neb.: "The Prevention and Control of Diseases of Dairy Calves."

Dr. L. M. Hutchings, Purdue University, Lafayette, Ind.: "The Diseases of Baby Pigs."

Dr. J. E. Mosler, Veterinary Clinic, Kansas State College, Manhattan: "Diseases of the Eyes of Small Animals."

Dr. Edward Howe, Iowa City, Iowa: "The Handling of Dystoclas in Large Animals."

Dr. Walter L. Bierring (M.D.), director, Iowa State Department of Health, Des Moines: "Human Brucellosis."

Dr. William Irwin, Tulsa, Okla.: "New Therapeutic Agents and Methods in Small Animal Practice."

Dr. Victor Berliner, Ortho Products Corporation, Raritan, N.J.: "The Practical Application of Endocrines in Veterinary Practice."

Dr. John R. Dick, Fort Dodge Laboratories, Fort Dodge, Iowa: "An Information Summary on the Handling of Primary and Complicated Milk Fever."

Dr. Thomas Crispell, Parsons, Kan., acted as moderator of a guided discussion on "Therapeutic Measures and Practice Methods."

Dr. Glen Dunlap was general chairman of the conference and Dr. A. H. Quin was secretary. Dr. Charles Bower was toastmaster and Dr. J. G. Hardenbergh, executive secretary of the AVMA, was guest speaker at the banquet on the evening of June 30 which was attended by more than 500 persons.

S/G. L. DUNLAP, Chairman.

## Nebraska

**The American Albino Horse.**—The Ranch in White at Naper, publishes a newsy bulletin

devoted to the development of the American Albino, which keeps one informed as what's doing in that field of animal production. The ranch not only raises and trains white horses but also runs a training and riding school for children from far and near. "What is more beautiful than a white horse or a troop of them?" gives a general idea of the enterprise. The American Albino Horse Club runs a stud book for white horses entitled to registry. Its object is to keep the world conscious of them.

## New Jersey

**Stone-Marshall Test Paper Acquired by Chemiatric Corp.**—The Chemiatric Corporation of Sparta, N. J., announces the acquisition of all patent rights to the Stone-Marshall test paper, extensively utilized for testing quaternary ammonium compounds used in the food, dairy, and allied industries.

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**Personal.**—Under the heading "The Veterinary Is a Lady," *The Washington Post* of May 9, features, in a page of pictures and a write-up, Dr. Helen Doremus (CORN '40) of Cedar Grove, N. J. While studying at Cornell, she met her husband, Dr. Henry M. Doremus, then an instructor in zoölogy and studying for a D.V.M. too. They were married shortly after Dr. Helen graduated in 1940, and together they practice and operate a well-organized and up-to-date hospital in Cedar Grove. Their practice ranges from chinchillas to horses.

## New York

**State Association.**—The fifty-seventh annual meeting of the New York State Veterinary Medical Society was held in Buffalo at the Hotel Statler on July 8-10, 1948. After President George H. Hopson's opening address, the scientific program was presented.

Dr. I. G. Howe, N.Y. BAI, Albany: "Foot-and-Mouth Disease in Mexico."

Drs. D. W. Baker, and Herbert Schwardt, State Veterinary College, Ithaca: "New Developments in Diagnosis and Control of Mange in Cattle and Swine."

Dr. Herman Hilleboe, New York state commissioner of health, Albany: "Livestock Public Health." Dr. E. V. Moore, assistant commissioner of agriculture, Albany, conducted a discussion on this subject.

Dr. J. T. Reid, State Agricultural College, Ithaca: "Nutrition in Relation to Fertility in Large and Small Animals."

Dr. Alexander Zeissig, veterinary consultant, Department of Health, Albany: "Rabies Situation in New York State."

Dr. Ross L. Brown, Plattsburgh: "Granular Vaginitis in Cattle." Dr. J. W. Cunkelman, Ft. Dodge Serum Co., Ft. Dodge, Iowa, was moderator of a discussion on this topic.

Dr. Cassius Way, New York City: "Hints and Tips on Horse Practice."

Dr. H. P. Noonan, Akron, Ohio: "Causes and Treatment of Indigestion in Large Animals."

Dr. L. A. Gendreau, Sherbrooke, Quebec:

"Bovine Laparotomy to Correct Torsion of the Uterus."

Dr. G. E. Gingras, Malone: "Rumenotomy of the Cow."

Dr. G. H. Kimnack, Hightstown, N.J.: "Teat Surgery in All its Aspects."

Drs. M. G. Fincher, Ithaca; J. S. Proper, Honeoye Falls; F. E. Martin, Westchester, Pa.; H. P. Studdert, Ithaca; F. W. Schutz, Brewster; L. S. Compton, Clymer; and R. F. Brown, Plattsburgh participated in a panel discussion on "Treatment and Control of Mastitis, Including Use of the Mastic."

Dr. E. Leonard, New York State Veterinary College, Ithaca: "Practical Handling of Fractures."

Dr. C. G. Rickard, New York State Veterinary College, Ithaca: "Practitioners Laboratory (Demonstrations of Procedures and Interpretations of Findings)."

Dr. Louis Cizek (M.D.), College of Physicians and Surgeons, Columbia University: "Parenteral Fluid Therapy."

Drs. J. A. Baker, Ithaca; M. Morris, New Brunswick, N.J.; and Charles R. Schroeder, Pearl River: "Diseases of Cats."

Dr. Frank Bloom, Flushing: "Clinical Pathological Case Report."

Dr. W. A. Hagan, dean, New York State Veterinary College, and president of the AVMA: "Organization for Better Service."

A complete and varied program, including a fashion show and a sight-seeing tour of Niagara Falls, was enjoyed by the ladies.

s/J. J. REGAN, *Secretary*.

**New York City Association.**—The June 2 meeting of the New York City Veterinary Medical Association was held in Penn Top South of the Hotel Pennsylvania. Speakers of the evening were:

Dr. Raymond J. Garbutt: "Renal Calculi in a Bitch with Clinical Photographs."

Dr. Theodore Kazimiroff (D.D.S.): "Applied Clinical Pathology in Dental Diseases of Animals."

Dr. W. A. Hagan, dean, New York State Veterinary College, Cornell University, Ithaca, and president of the AVMA was elected the first honorary member of the Association at this meeting.

s/C. R. SCHROEDER, *Secretary*.

**National Dog Week Award.**—Dr. Clive M. McCay (Ph.D.), professor of nutrition at Cornell University, was named winner of the National Dog Week research award for 1947. The award carries with it a medal and \$2,000 in cash. This was the first of what is planned to be an annual contest intended to encourage research work helpful to dog welfare.

Dr. McCay received the award in recognition of his contributions to the improvement of the health and happiness of "man's best friend" through his studies in dog nutrition. He is the author of "Nutrition of the Dog," as well as numerous papers on the subject of dog nutrition in professional and scientific journals. He is now at work on a project concerned with aging in dogs.

Dr. McCay's selection was by unanimous vote of the committee of judges consisting of the following five prominent personalities in the field of health and education: Drs. C. A. Elvehjem (Ph.D.), dean of the graduate school of the University of Wisconsin; A. C. Ivy (Ph.D., M.D.), vice-president of the University of Illinois; James H. Steele (D.V.M.), chief of the veterinary public health section of the United States Public Health Service; Carl F. Schlottbauer (D.V.M.), of the Mayo Foundation; and W. A. Young (D.V.M.), managing director of the Anti-Cruelty Society of Chicago.



Dr. C. M. McCay receiving the National Dog Week research award. Left to right—Dr. W. A. Hagan, Mr. Harry Miller, Dr. McCay, Mr. C. M. Olson, and Dr. Wm. I. Myers (Ph.D.).

Formal presentation of the Award to Dr. McCay took place on June 16 on the Cornell campus at Ithaca, N.Y., in the presence of his university associates and officials of the National Dog Week organization.

**The Season's Racing Stakes.**—According to an announcement of the state's racing associations made in February, the 118 stakes of 1948 will total \$2,665,000 added money, of which more than \$1,000,000 will be distributed at Belmont Park. Of these, there are three \$100,000 added stakes, and nine that range from \$25,000 to \$50,000.—*From Blood Horse*.

## North Carolina

**Annual Meeting.**—The forty-seventh annual meeting of the North Carolina State Veterinary Medical Association was held at the Hotel Carolina in Raleigh on June 29-30, 1948. The following officers were elected at the business meeting: Drs. F. B. Coates, Reidsville, *president*; J. C. Bateman, Greenville, *president-elect*; C. W. Young, Mocksville, *vice-president*; and J. H. Brown, Tarboro, *Secretary-treasurer*. Members of the Executive Committee are Drs. N. B. Tyler, Raleigh, R. P. Huffman, Wilmington, and W. D. Collins, Winston-Salem. Dr. J. H. Brown was chosen resident secretary of North Carolina for the AVMA. The scientific program follows.

Dr. W. J. Gibbons, Department of Surgery and Medicine, Auburn, Ala.: "Equine Therapeutics," and "Diseases of the Nervous System."

Dr. Dyar C. Wood, Greensburg, Ind.: "Bovine Breeding Problems," and "Practical Suggestions in Cattle Practice."

Dr. B. F. Cox, Poultry Research, North Carolina State College, Raleigh: "The Role of Sulfonamides in Poultry Diseases."

Dr. C. D. Stein, U. S. BAI, Beltsville, Md.: "Equine Infectious Anemia."

Dr. R. S. Sugg, dean, School of Veterinary Medicine, Auburn, Ala.: "Veterinary Education."

Dr. G. J. Lawhon, Jr., Hartsville, S. Car.: "Modern Canine Surgery."

Dr. Raymond C. Snyder, secretary, AVMA Special Committee on Ethics, Philadelphia, Pa.: "Ethics of the Veterinary Profession."

The ladies were entertained at a luncheon, bridge party, and enjoyed the banquet with their husbands.

s/J. H. BROWN, *Secretary*.

## North Dakota

**State Association.**—The forty-third annual meeting of the North Dakota Veterinary Medical Association was held at the Clarence Parker Hotel in Minot on June 14-15, 1948. At the business meeting, the Association approved the resolutions of the Committee on Personnel at the brucellosis meeting held in Chicago on June 10-11. This resolution calls for lay participation in the brucellosis eradication project. The employment of lay technicians for the purpose of collecting blood samples, and under the supervision of state and assistant state veterinarians, is not in conflict with the North Dakota Veterinary Practice Act. The following officers were elected: Drs. J. O. Einerson, Lakota, *president*; James Foss, Minot, *vice-president*; and T. O. Brandenburg, Bismarck, *secretary-treasurer*. Dr. Frederik Low was selected for resident state secretary of the AVMA. The scientific program follows:

Dr. T. O. Brandenburg, state veterinarian, Bismarck: "State Veterinarian's Report."

Dr. B. T. Simms, chief, U.S. BAI, Washington, D.C.: "Foot-and-Mouth Disease," and "Activities of the BAI in a Changing World."

Dr. D. K. Christian, Moorhead, Minn.: "Municipal Dairy and Food Inspection."

Dr. C. H. Smith, Sioux City, Iowa: "Milk Fever in Cattle." Dr. Smith also conducted an open discussion on cattle diseases.

Dr. D. F. Eveleth, Fargo, N. Dak.: "Veterinary Research at North Dakota Agricultural College."

Dr. James Farquharson, Department of Surgery, Colorado A. & M. College, Fort Collins: "Surgical Techniques" (with illustrations).

Drs. Ralph Shigley, Minot, and Harry Ross, Brandon, Manitoba, Canada, were speakers at the banquet.

Officers of the Women's Auxiliary elected at this meeting were Mrs. J. R. Robinson, Garrison, *president*; Mrs. J. O. Einerson, Lakota, *vice-president*; and Mrs. Frederik Low, Bismarck, *secretary-treasurer*. Mrs. T. O. Brandenburg and Mrs. J. H. Winslow were elected as delegates to represent the State at the convention of the AVMA in San Francisco.

s/FREDERIK LOW, *Resident State Secretary*.

## Oklahoma

**Summer Conference.**—A summer conference for veterinarians was held June 14-15, 1948, at the Oklahoma A. & M. College, Stillwater. President Henry G. Bennett gave the address of welcome and the following program was presented:

Dr. C. K. Whitehair, Department of Animal Husbandry, Oklahoma A. & M. College, Stillwater: "Nutrition and its Relationship to Animal Diseases."

Dr. F. R. Hassler, director of laboratories, State Department of Public Health, Oklahoma City: "The Public Health Program in Oklahoma." This included a discussion of the diseases common to man and animals.

Dr. D. E. Howell, Department of Entomology, Oklahoma A. & M. College: "Value of Newer Materials in Control of External Parasites in Livestock."

Dr. L. C. Moss, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo.: "Skin Diseases in Small Animals," and "External Fixation of Fractures in Small Animals with the Use of Kirschner Pins" (demonstration).

Dr. J. E. Weinman, School of Veterinary Medicine, University of Missouri, Columbia: "Lameness in Saddle Horses," and "Dairy Cattle Practice."

Dr. C. H. McElroy, acting dean, School of Veterinary Medicine, Oklahoma A. & M. College: "Organization of the School of Veterinary Medicine at Oklahoma A. & M. College."

Dr. Herman Farley, director, Veterinary Research Institute, Oklahoma A. & M. College: "Newer Developments in Anaplasmosis Research."

The motion pictures "Ye Olde and Ye New in Medical Research," "Newcastle Disease," "Removal of Cyst from Uterine Horn in a Bitch," and "Brain Trauma in the Dog" were shown, and the group was taken on a tour of the Veterinary Anatomy Building.

s/D. B. PELLETTE, *Secretary*.

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**Tulsa Association.**—The monthly meeting of the Tulsa Veterinary Medical Association was held in the Tulsa Hotel on June 25, 1948.

C. H. Benning, M.D., M.P.H., the newly appointed health director of Tulsa, discussed the reorganization of the Tulsa Health Department. Dr. Benning emphasized the importance of veterinary preventive medicine in connection with his program of meat and dairy hygiene and communicable diseases of animals transmissible to man.

s/CHARLES S. GREER, *Assistant Secretary*.

## Pennsylvania

**Penn-Allegheny Association.**—The Penn-Allegheny Veterinary Medical Association met at the Dairy-Dell Hotel in Ebensburg on June 17, 1948. Guest speaker was Dr. John J. Connolly, Indiana, Pa., who spoke on "Bovine Fertility." Those in attendance also enjoyed a display of instruments and specimens.

s/C. R. BABE, *Secretary*.

## Texas

**Rabies in a Calf.**—The calf shown in these pictures, taken the third day after onset of rabies, was bitten sixty days before develop-



ing symptoms. The diagnosis of rabies was later confirmed by laboratory test.

s/JOHN M. FITTE, D.V.M.  
Marlin, Iowa

## Utah

**Annual Meeting.**—The forty-ninth annual meeting of the Utah Veterinary Medical Association was held June 25-26, 1948, in the Veterinary Science Building, Utah State Agricultural College, Logan. After an introduction by President H. Verne Wiser, the following program was presented:

Dr. Walter R. Krill, dean, College of Veterinary Medicine, The Ohio State University, Columbus: "The Challenge to the Veterinary Profession," and "Obstetrics in Large Animals."

Dr. H. W. Johnson, Division of Veterinary Medicine, Colorado A. & M. College, Fort Collins: "Traumatic Gastritis and Related Digestive Disturbances," "Large Animal Clinic," and "Urethral Calculi in the Steer."

Dr. C. R. Schroeder, assistant director, Animal Industry Section, Lederle Laboratories,

Pearl River, N. Y.: "The Future of Chemotherapy," and "Desiccation of Biological Products."

Dr. L. L. Madsen, head, Department of Animal Husbandry, Utah State Agricultural College, Logan: "Commercial Mineral Mixtures."

Dr. Roy Nipko, Salt Lake City: "Small Animal Clinic."

The ladies were entertained at a luncheon, bridge, and enjoyed the banquet with their husbands.

s/O. G. LARSEN, *Secretary.*

## Vermont

**Conference for Veterinarians.**—A conference for veterinarians sponsored jointly by the Vermont Veterinary Medical Association and the University of Vermont and State Agricultural College, Department of Animal Pathology, was held at Basin Harbor, Vt., on June 23-24, 1948. Veterinarians from Quebec, New Hampshire, Massachusetts, and New York, as well as Vermont, attended this meeting. The program follows:

Dr. M. G. Fincher, Department of Veterinary Medicine, New York State Veterinary College, Cornell University, Ithaca: "Reproductive Disturbances in the Dairy Cow." A discussion on this topic was led by Dr. C. T. Whitney, Burlington, Vt.

Dr. L. A. Gendreau, Sherbrooke, Quebec: "Bovine Obstetrics and Surgery." Dr. D. A. Walker, Morrisville, Vt., led the discussion following the presentation of this paper.

Dr. A. K. Kuttler, in charge, Tuberculosis Eradication, U. S. BAI, Washington, D. C.: "Control and Eradication of Brucellosis from a National Point of View." The discussion was led by Dr. John Canty, Montpelier, Vt.

Dr. H. C. Stephenson, professor of Veterinary Therapeutics and Small Animal Diseases, New York State Veterinary College, Cornell University, Ithaca: "Small Animal Medicine." Dr. D. A. Hopkins, Brattleboro, Vt., conducted the discussion following Dr. Stephenson's talk.

Guests and members took part in large and small animal clinics.

A program of bridge, swimming, and other activities was provided for wives and other members of families attending the conference.

s/E. F. WALLER, *Secretary.*

## Washington

**Dr. Dinsmore Joins College Staff.**—Dean R. E. Nichols of the College of Veterinary Medicine at the State College of Washington has announced the appointment of Dr. Jack R. Dinsmore (OSU '41), formerly of the North Shore Animal Hospital, Evanston, Ill., as associate professor in charge of the small animal clinic. Dr. Dinsmore will also teach courses in small animal medicine and surgery.

Dean Nichols also reports that the Conference for Veterinarians held at the college June 21-23, 1948 (*see* program, page 103, July JOURNAL), was a great success and the largest

ever held in the state. There were 124 veterinarians in attendance from ten states and Canada, and 140 persons were at the banquet on the evening of June 22.

## FOREIGN

### Argentina

**Human Tuberculosis of Bovine Origin.**—The examination of 226 tuberculous specimens from different places disclosed the presence of the bovine bacillus 13 times (5.75%), and intermediate types 27 times (11.9%). Bovine origin is usually assigned to the latter type. Lagnière, in 1904, found 1 out of 6 tuberculous children infected with the bovine type.—*Am. J. Tuberc., Apr., 1948.*

### England

England and Wales are among the few countries where meat inspection is not carried out under direct supervision of veterinarians.

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**Practice Costs Up.**—The news bulletin of the Women's Veterinary Association (May, 1948), reporting on a letter received from a British correspondent, points out that the cost of practice has risen 45 per cent in England during the past two years, yet fees cannot be increased in proportion.

### Scotland

**Four Generations of Veterinarians.**—The following article appeared in the *Glasgow Herald*, Feb. 10, 1948.

*100 Years Ago—*

"On the 7th inst. Mr. James Spreull, veterinary surgeon, Milngavie, in presence of the medical practitioners and a number of gentlemen of the village, performed the painful operation of dividing both flexor tendons in the right fore leg of a horse, under the influence of chloroform, with complete success. From the time the medicine was applied only one minute and thirty seconds elapsed till the horse fell down and lay quite motionless, and six minutes later the operation was completed."

The Spreull family has included at least one veterinarian in each generation since that time.

S/A. E. CAMERON.

### Sweden

**Quarantine Regulations.**—Since many people arriving in Sweden accompanied by animals have incomplete or inaccurate information concerning the Swedish quarantine regulations, the Royal Swedish Veterinary Board has issued the following information:

For dogs, cats, and furred animals the time of quarantine should be:

- 1) Four (4) months if the animals are brought from countries which are de-

- clared to be infected with rabies; and
- 2) At least one (1) month if they are brought from countries infected with leptospirosis.

Whether a country is to be considered as infected with rabies is determined by the Royal Swedish Board of Trade. Since most countries are, at present, infected with leptospirosis, no specific declarations are issued in that respect.

## STATE BOARD EXAMINATIONS

**West Virginia.**—The West Virginia Veterinary Board will hold examinations for the licensing of veterinarians at the Stonewall Jackson Hotel, Clarksburg, W. Va., on Monday, September 13, 1948, at 9 a. m. All applications must be in the hands of the secretary at least ten days before the date set for examinations. Applications accepted only from graduates of schools of veterinary medicine recognized by the AVMA. For further information write to Dr. William E. Trussell, secretary, West Virginia Veterinary Board, Charles Town, Jefferson County, W. Va.

**Iowa.**—The Iowa Veterinary Medical Examining Board will hold examinations for the licensing of veterinarians on Oct. 4-5, 1948. Applicants are asked to be in the office of the Division of Animal Industry, State House, Des Moines, Iowa, not later than eight o'clock on the morning of October 4. Dr. H. U. Garrett, chief, Division of Animal Industry, State House, Des Moines 19, Iowa.

## COMING MEETINGS

**American Veterinary Medical Association.** Palace Hotel, San Francisco, Calif., Aug. 16-19, 1948. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

**American Animal Hospital Association.** Palace Hotel, San Francisco. Aug. 17, 1948, at 12:00 noon. Wayne H. Riser, Evanston, Ill., executive secretary.

**American Association for the Advancement of Science.** Centennial Meeting, Washington, D. C., Sept. 13-17, 1948. J. M. Hutzel, 1515 Massachusetts Ave., N.W., Washington 5, D. C., assistant administrative secretary.

**Southeast Missouri Veterinary Medical Association.** J. V. Moore's Animal Hospital, Hayti, Mo., Sept. 29, 1948. F. A. Stepp, 405 N. St., Sikeston, Mo., secretary.

**Purdue University.** Annual Short Course for Veterinarians. Purdue University, Lafayette, Ind., Oct. 6-8, 1948. C. R. Donham, Department of Veterinary Science, Purdue University, head.

**Southern Veterinary Medical Association.** Annual Meeting. John Marshall Hotel, Richmond, Va. Oct. 11-13, 1948. A. A. Husman,

- 320 Agriculture Bldg., Raleigh, N. Car., secretary.
- U. S. Livestock Sanitary Association. Shirley Savoy Hotel, Denver, Colo., Oct. 13-15, 1948. R. A. Hendershott, 1 West State St., Trenton 8, N. J., secretary.
- Eastern Iowa Veterinary Association. Annual meeting. Hotel Montrose, Cedar Rapids, Iowa, Oct. 14-15, 1948. Laurence P. Scott, Waterloo, Iowa, secretary.
- New England Veterinary Medical Association. Annual meeting. Boston, Mass., Oct. 14-15, 1948. C. Lawrence Blakely, 180 Longwood Ave., Boston, Mass.
- South Dakota Veterinary Medical Association. Annual Meeting, Carpenter Hotel, Sioux Falls, S. Dak., Oct. 21-22, 1948. R. M. Scott, 1501 S. Main Ave., Sioux Falls, S. Dak., secretary.
- Minnesota State University. Conference on animal nutrition, Oct. 25-26, and conference for veterinarians, Oct. 27-28, 1948. University Farm on the St. Paul campus. Willard L. Boyd, Department of Agriculture, University of Minnesota, St. Paul 1, Minn.
- American Public Health Association, Boston, Mass. Nov. 8-12, 1948. R. M. Atwater, 1790 Broadway, New York City 19, N. Y., executive secretary.
- Executive Board of the American Public Health Association. Annual meeting at Boston, Mass., Nov. 8-12, 1948. Dr. Reginald M. Atwater, 1790 Broadway, New York 19, N. Y., executive secretary.
- American Society of Animal Production. Annual meeting. Sherman Hotel, Chicago, Ill., Nov. 26-27, 1948. H. M. Briggs, Oklahoma A. & M. College, Stillwater, Okla., secretary.
- Nebraska State Veterinary Medical Association. Annual meeting. Cornhusker Hotel, Lincoln, Nebr., Dec. 8-9, 1948. L. V. Skidmore, College of Agriculture, Lincoln 1, Nebr., secretary.
- Mississippi Valley Veterinary Medical Association. Hotel Pere Marquette, Peoria, Ill. Nov. 9-10, 1948. W. J. Angerer, Box 23, Atkinson, Ill.
- Illinois State Veterinary Medical Association. Annual meeting. Abraham Lincoln Hotel, Springfield, Ill., Jan. 26-28, 1949. A. G. Misener, 6448 N. Clark St., Chicago 26, Ill., secretary.
- Chicago Veterinary Medical Association. Palmer House, Chicago, Ill., the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.
- Houston Veterinary Medical Association, Houston, Tex., the first Thursday of each month. Edward Lepon, Houston, Tex., secretary-treasurer.
- Keystone Veterinary Medical Association. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.
- Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.
- New York City Veterinary Medical Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.
- Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

The Golden Gate,  
San Francisco



Saint Louis District Meetings. St. Louis, Mo., the first Friday of June and November, W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

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### Foreign Congresses

World's Poultry Congress. Copenhagen, Denmark, Aug. 20-25, 1948. Secretariat General, Axelborg, Copenhagen 5, Denmark.

National Veterinary Medical Association of Great Britain and Ireland. Southport, England. Sept. 8-15, 1948. F. Knight, 36, Gordon Sq., London, W. C. 1, general secretary.

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## VETERINARY MILITARY SERVICE

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**Appointment in the Veterinary Corps.**—Appointment in the Veterinary Corps Reserve and the Veterinary Corps Regular Army is limited to graduates of schools of veterinary medicine approved by the Surgeon General of the Army. The following schools in North America have been approved:

Alabama Polytechnic Institute, Auburn, Ala.

Colorado A. & M. College, Fort Collins, Colo.

Iowa State College, Ames, Iowa.

Kansas State College, Manhattan, Kan.

Michigan State College, East Lansing, Mich.

New York State Veterinary College, Cornell University, Ithaca, N. Y.

Ohio State University, Columbus, Ohio.

Ontario Veterinary College, University of Toronto, Ontario, Can.

University of Pennsylvania, Philadelphia, Pa.

Texas A. & M. College, College Station, Texas.

State College of Washington, Pullman, Wash.

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## MARRIAGES

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Dr. Don O. Whitney (KSC '41), Hanford, Calif., to Miss Marguerite Meyer, Jan. 23, 1948.

Dr. Donald L. Cassidy (KSC '38), Wapello, Iowa, to Miss Barbara Brown, March 16, 1948.

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## BIRTHS

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Captain (TEX '45) and Mrs. Samuel Keith Kirk, Modesto, Calif., announce the birth of a son, Donald Keith, March 2, 1948.

Captain (OSU '45) and Mrs. A. J. Roth, Fort Snelling, Minn., announce the birth of a son, David Bryon, March 4, 1948.

Dr. (TEX '43) and Mrs. George Harner, Rogers, Ark., announce the birth of a son, James William, on Apr. 8, 1948.

Dr. (API '44) and Mrs. J. David Schaffer, Paoli, Pa., announce the birth of a son, David Matthew, on Apr. 15, 1948.

Dr. (TEX '44) and Mrs. Roscoe O. Sealy, Jr., Kansas City, Kan., announce the arrival of a son, Darwin Wayne, on Apr. 23, 1948.

Dr. (API '42) and Mrs. Jeff Byrd, Nashville, Ga., announce the birth of a son.

Dr. (API '47) and Mrs. Raymond Young, Colquitt, Ga., announce the birth of a daughter.

To Dr. (KSC '41) and Mrs. C. L. Paulsen, Bartlesville, Okla., a son, Kent, on Feb. 8, 1948.

To Captain (ISC '46) and Mrs. S. W. Thompson, II, Lompoc, Calif., a daughter, Barbara Wesley, on May 13, 1948.

Dr. (CORN '39) and Mrs. J. J. McCarthy, Jacksonville, Fla., announce the birth of a daughter, Patricia Ann, on May 17, 1948.

To Dr. (KSC '47) and Mrs. Joel N. Kutz, Brockport, N. Y., a son, May 7, 1948.

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## DEATHS

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★William L. Boone (GA '24), 55, Baxley, Ga., died in July, 1948. Dr. Boone was admitted to the AVMA in 1939.

★Claude R. Diller (KCVC '11), 63, Los Angeles, Calif., died June 19, 1948. He had been the owner of a pet hospital for more than twenty years, but for the past three years had been inactive because of poor health. Dr. Diller was admitted to the AVMA in 1930.

★Elmo W. Hansson (CVC '06), 66, El Paso, Texas, died March 11, 1948, of a heart attack. He had been engaged in general practice in El Paso for the past twelve years; before that he had practiced in Des Moines, Iowa. Dr. Hansson was admitted to the AVMA in 1939.

★Alfred M. Jacoby (IND '20), 54, Shrewsbury, Mass., died June 21, 1948. He had been employed by the U. S. BAI, on the tuberculosis eradication program for twenty-six years. Dr. Jacoby was a member of the Massachusetts Veterinary Medical Association, the National Association of Veterinarians, and the AVMA.

★Walter A. Sullivan (McK '07), longtime BAI veterinarian died at his home in Indianapolis, June 24. He was the inspector-in-charge in Idaho for a number of years and more recently of the Bureau force at Indianapolis. Dr. Sullivan was a native of Chicago, the son of a prominent harnessmaker at 18th Street and South Wabash Avenue. He served on the staff of the McKillip Veterinary College for several years before entering the government service. He is survived by his widow, Catherine, his son Joseph of Indianapolis, son John of Lincoln, Neb., and his sister Mrs. Mabel Culbert of California. His remains were interred at Calvary Cemetery, Chicago, June 28. Dr. Sullivan was admitted to the AVMA in 1909. He served on the Executive Board from 1937 to 1940, representing District VII.

★Indicates members of the AVMA.